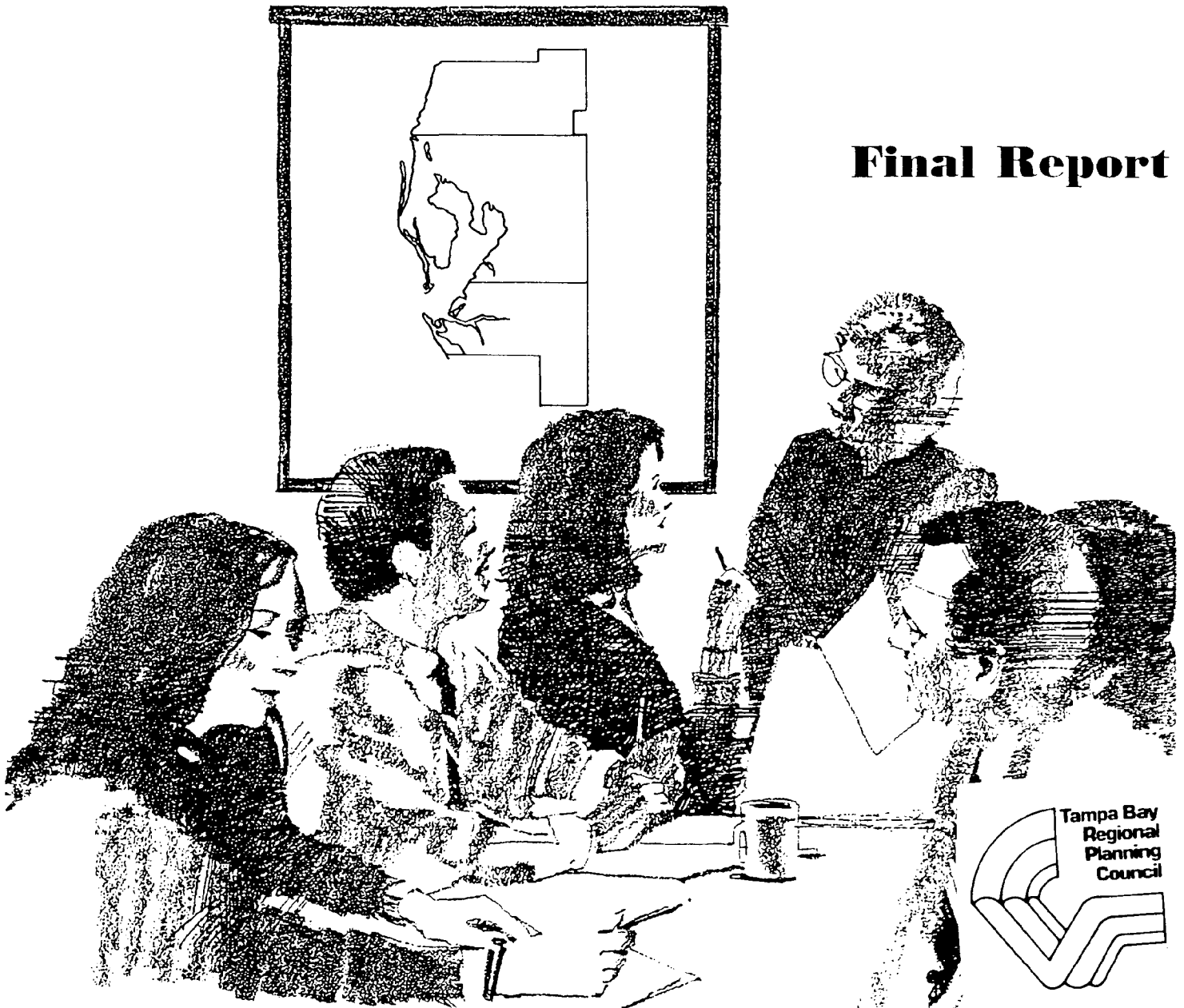


Task 3

Regional Coordinating Council for Coastal Zone Information

Final Report



EXECUTIVE SUMMARY

The Tampa Bay Regional Coordinating Council (TBRCC), which is administered locally by the Tampa Bay Regional Planning Council (TBRPC), has been established to promote the sharing of growth management spatial data throughout the four-county region of Tampa Bay. Widely concerned about spatial data procurement expense, counties and communities with ever-decreasing budgets are able to share data and reduce the costs previously associated with expensive and redundant duplication of data purchases through this newly established data-management structure. The Coordinating Council, which is currently chaired by the TBRPC Executive Director, was created by a Memorandum of Understanding signed in early 1992 by the Administrators of Hillsborough, Manatee, Pasco and Pinellas Counties, the Executive Director of the Hillsborough County City-County Planning Commission, the regional directors of State agencies such as the Department of Transportation, Department of Environmental Regulation, Department of Health and Rehabilitative Services, Environmental Protection Commission of Hillsborough County, Southwest Florida Water Management District, the TBRPC, and the Pinellas County Property Appraiser. As the senior management level, the Coordinating Council gives guidance to the chief working body, the Regional Advisory Committee (RAC), composed of representatives from the Council membership as well as from the University of South Florida, the Department of Natural Resources, and local governments on an ad hoc basis. A staff member from the Regional Planning Council serves as Central Information Unit or Facilitator for the Coordinating Council and as Chairman, Regional Advisory Committee.

Meeting extensively in early 1992, the Regional Advisory Committee through a process known as *Futures Technique*, compiled a list of the 10 most pressing problems facing the Tampa Bay region in terms of data needed to address issues. Not surprising, roads and transportation networks, water quality issues, and disaster preparation (hurricanes) were deemed of importance in cataloging data for the region.

The specific work is accomplished by Technical Advisory Committees (TACs) which are convened by the RAC and which are even further specialized as either Consensus Groups dealing with the technical aspects of data transfer, or Subcommittees addressing broader, policy issues. Headed by an expert in the subject matter, each Consensus Group attempts to document all pertinent information resources; identify data sharing activities among the agencies; and explore joint activities for data sharing. The results of this effort result in the compilation of a card catalog of the data through the use of Data Descriptive Summaries. Data is then entered into a newly created Florida State network called the *Florida Spatial Data Directory (FSDD)*, managed through the Governor's Office in Tallahassee by the Growth Management Data Network Coordinating Council (GMDNCC). The *FSDD* does not attempt to

and centralize the repository of data; only a directory of the data, information describing the data, and where it can be obtained through the establishment of an electronics network using a modem to the FSDD and computer storage of the data where it is held and maintained locally. This process ensures that data is kept under the control of the originator, in most cases, and is available to all with a modem and computer to access the data. The FSDD is the most technical phase of the process and is still in the formative stages of development. It becomes fully operational in mid-1993.

The parent GMDNCC was an outgrowth of the Florida 1985 Growth Management Act, in an attempt to explore ways and devise means for a sharing of growth management information statewide. Under a contract awarded by the Interagency Management Committee, the Executive Office of the Governor under the Staff Director of the GMDNCC, prepared a report entitled, "A Model Geographic Information System for Coastal Zone Management," for the Coastal Zone Management Program. The goals of the program were to promote the sharing of geographic information in a coastal zone environment; develop procedures to avoid the duplication of effort associated with the collection of data; promote methods for developing consistency of data elements; and develop procedures for adopting common data formats for multi-agency/governmental sharing of data.

The Tampa Bay region was chosen as the prototype area to begin the collection of data information on a regional scale with the ultimate goal of expanding region-by-region until a statewide network is completed. The Tampa Bay region consists of approximately 11 governmental organizations and numerous municipalities. The Tampa Bay Regional Planning Council was selected to administer the project because it is the only broad-based regional organization that provides a common system for area wide coordination of Federal, State and local governments, focusing on planning and problem resolution. In regard to Geographic Information Systems (GIS) which employ spatial data, there is no coordinating body that previously provided a directory identification of existing geographic information, GIS developers, or sources of information prior to the creation of the TBRCC.

Three highly successful Coordinating Council efforts are ongoing with more planned in the future. Consensus Groups have been established to collect data on Cockroach Bay for the purpose of assisting the Hillsborough County City-County Planning Commission to revise their Comprehensive Plan Amendment for the management of Cockroach Bay. A Demographics Information Consensus Group has been formulated to determine regional needs for demographic data and to establish guidelines for the development and maintenance of discrete demographic summaries and projections. As an example of the flexibility that exists within the TBRCC management structure, the Demographics Information Consensus Group has reached beyond the normal complement of representatives from member governments/State agencies into the private sector, utilizing the skills of business and industry who employ demographic specialists to forecast future needs for the Tampa Bay region.

The third group is the Stormwater Management Consensus Group which is seeking to identify, coordinate and facilitate stormwater data exchange among governmental agencies assessing stormwater management issues in the Tampa Bay region. This group works very closely with the Tampa Bay National Estuary Program (TBNEP) to assist TBNEP in compiling data needed for reports to the United States Environmental Protection Agency. A fourth group is being formed in the aftermath of Hurricane Andrew to address the protection and recovery of valuable data assets following a major disaster. The work of each consensus group is monitored and coordinated by TBRCC Facilitator who works in liaison with the State GMDNCC. The Facilitator also provides all administrative support to the Coordinating Council, the RAC and the Consensus Groups.

Success is measured by more than the considerable progress to date. Being a close-knit organization of many organizations, results are achieved by consensus of the participants who all work on a volunteer basis for the broader regional common good. While some grant funds are available for processing the more technical data exchange requirements, the efforts of the entire process hinge upon the goodwill and cooperation which has been so forthcoming throughout the Coordinating Council's short history. In an era of very scarce fiscal resources, the TBRCC has shown how local governments and State agencies can agree to pool talent and personnel resources to achieve the common goal of data sharing on the most cost effective basis. As everyone willingly participates, taxpayers collectively benefit.

In choosing the Tampa Bay Regional Planning Council to implement the management plan devised by the *CZM Final Report*, the Office of the Governor has specifically chosen a regional entity as the focal point for data-sharing. We believe this selection has merit for other areas of the state as well. As the state's Regional Planning Councils look towards legislation which will reconstitute the organizations, define new roles and missions, it may be prudent to give the RPCs this additional data-sharing task with appropriate funding that would guarantee a level of performance statewide that is not governed by individual grants efforts. The goal is complete statewide networking through the Florida Spatial Data Directory with eventual multi-state interaction with such groups as the Gulf of Mexico Program which is already pursuing data sharing, and with other National Estuary Programs (such as the Galveston NEP) that have likewise been establishing management structures for data access and data sharing.

Recommendations

It is imperative that the work initiated by the *CZM Final Report* and undertaken by the contract between the Office of the Governor and the Tampa Bay Regional Planning Council continue to provide a management structure for regional data-sharing.

- The Tampa Bay Regional Coordinating Council should continue its work with the Growth Management Data Network Coordinating Council to further identify specific areas for data-sharing, development and refinement of documentation standards, and identification of permanent funding.
- The Regional Advisory Committee should continue to serve as the working body of the TBRCC to identify for consensus group formation, those issues identified in the Strategic Plan having corporate value to the regionwide data-sharing effort.
- Consensus Groups should continue to seek ways for streamlining the process of data cataloging and documentation.
- The Growth Management Data Network Coordinating Council is encouraged to continue its efforts to effect regional data coordination through the establishment of similar regional coordinating councils for data management, through Regional Planning Councils as patterned after the *CZM Final Report* recommendations and established by the Tampa Bay RPC.
- Permanent funding to Regional Planning Councils for regional data coordination should be provided through legislative action.

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- 2 Tampa Bay Regional Coordinating Council Memorandum of Understanding**
- 3 A Strategic Plan for the Tampa Bay Regional Coordinating Council (TBRCC)**
- 4 Data Descriptive Summary Instructions**
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- 8 *Florida Spatial Data Directory Users Manual (Draft)***
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- 11 Interagency Data Sharing Through GIS for Cockroach Bay**

GLOSSARY

BOCC	Board of County Commissioners
CAPMAT	Cockroach Bay Aquatic Preserve Management Advisory Team
COBRA	Cockroach Bay Restorative Alliance
CZM	Coastal Zone Management
DCA	Department of Community Affairs
DIF	Directory Interchange Format
EPC	Environmental Protection Commission of Hillsborough County
FDER	Florida Department of Environmental Regulation
FDNR	Florida Department of Natural Resources
FDOT	Florida Department of Transportation
FGDC	Federal Geographic Data Committee
FMRI	Florida Marine Research Institute
FSDD	Florida Spatial Data Directory
GIS	Geographic Information System
GMDNCC	Growth Management Data Network Coordinating Council
HRS	Health and Rehabilitative Service
LOS	Level of Service
NPDES	National Pollutant Discharge Elimination System
STORET	Data Program used by FDER for storing water quality data
SWFWMD	Southwest Florida Water Management District
SWIM	Surface Water Improvement Program
TBNEP	Tampa Bay National Estuary Program
TBRCC	Tampa Bay Regional Coordinating Council
TBRPC	Tampa Bay Regional Planning Council
WAIS	Wide Area Information Server (Software)
WCRWSA	West Coast Regional Water Supply Authority

INTRODUCTION

To make informed decisions on the coastal zone issues, a coastal zone resource manager must have the ability to integrate and analyze the vast amounts of information that are available. A Major problem exists for resource management in that data collection is typically restricted by site specific projects and political boundaries, but coastal zone issues require an ecosystem perspective that is much broader. Geographic Information Systems (GIS) is a powerful tool that can overcome this problem by merging data from multiple sources allowing region-wide analysis. However, integration of those various data sets can only be accomplished if they are standardized and procedures exist to facilitate the sharing of this data.

One of the major objectives of the Growth Management Data Network Coordinating Council (GMDNCC), Office of the Governor, is to facilitate the sharing of information. The GMDNCC, in cooperation with regional and local governments in the Tampa Bay region, completed a study¹ through a CZM grant that defines a management structure to facilitate the standardization and sharing of information for that region. (See Appendix 1 for a discussion of the GMDNCC as described in *A Multi-Agency Management Structure to Facilitate the Sharing of Geographic Data*, David Stage, Tallahassee, Florida.)

During the 1991-92 Coastal Zone Management Program grant period, the Governor's Office, in conjunction with the Tampa Bay Regional Planning Council, obtained funding to implement the proposed management structure. This included the installation of the management structure recommended in the *Final Report* of the Coastal Zone Management project, the development of a dynamic survey of existing data sets with "corporate value" in the Tampa Bay region, the cataloging of those data sets on an automated data directory, initiation of Consensus Groups for standardizing designated data sets, and an assessment of the effectiveness of the multi-agency management structure with recommendations for improvements and implementation on a Statewide level.

Background

Geographic Information System (GIS) technology is the tool that can manage the large amounts of geographic or spatial data. It is required for effective governmental planning. Ironically, it is this new technology that is moving government into a "quiet crisis" in regards to the collection and analysis of the data. Factors that effect coastal

1. The Coastal Zone Management Program, *"A Model Geographic Information System for Coastal Zone Management," Final Report*. Prepared by the State of Florida Executive Office of the Governor Office of Planning and Budgeting, December 1990.

zone issues are not restricted to political boundaries, but planning and data collection usually are. GIS has the ability to merge information from multiple sources to form a multi-jurisdictional picture, but only if the data is consistent. For example, if two adjoining counties are collecting property descriptions and one county is including duplexes, with apartment complexes and the other is not, it will be impossible to perform a regional analysis of the location of this information. What this illustrates is that it is essential to focus on the data. In fact, estimates show that 80 percent of the cost of the GIS is due to data collection and data maintenance. Furthermore, it is anticipated that the cost of the data collection, which requires extensive human resources, will continue to increase in contrast to the costs of the systems on which the data is processed.

Because the ability to purchase GIS has only recently come within reach of most organizations, there is a unique opportunity to direct the development of data collection in such a way that a common language between all levels of government can be built. This will allow information to be easily transferred and utilized between different agencies, and for information that is collected at a local level to be utilized at a regional or State level. If action is not taken in the immediate future, much of the information that is being collected for planning, scientific studies, regulation and monitoring will be lost, resulting in a set of disparate information systems that will be unable to share their information resources. What is most important to coastal zone management is that without such coordination, information that is collected for different systems cannot be merged to develop a complete picture of an ecosystem, subsequently severely impairing ecosystem analysis.

There are at least twenty State, Federal, regional and local governments that are using and collecting environmental information on the Tampa Bay ecosystem, not including the Universities, the private sector and municipalities. Of these organizations, there are seven in the Tampa Bay region that have a GIS and three that are in the planning stages. Prior to the collaborative effort between the Office of the Governor's GMDNCC and the Tampa Bay Regional Planning Council, there was no formal network, for standardizing and sharing this information. Consequently, data collection activities were subject to duplication and the data that is usable was limited to those who knew where the data resided.

The long-term goal of this collaboration is to provide coastal zone managers with the information that they need to make informed decisions in the Tampa Bay area, and to maximize the use of available resources by sharing information on a region-wide basis and reducing duplicative activities. This was accomplished by the development of a federation of independently held databases for the many agencies that are collecting data on the Tampa Bay region. These databases are being linked together by standards and a management structure. This federation provides an umbrella

under which information that is collected for any project, *inclusive of all the issues of special focus*, can be standardized, archived, advertised and accessed as a resource for anyone.

The Process is the Product

There are two very important points to be made about the nature of this specific project which distinguishes it from most contracted projects. First, as will become evident, the efforts of those associated with the project do not terminate with the completion of the contract. The structures established for achieving the overall goal of data-sharing at the least cost are ongoing and the goal remains a standard by which all participants can set individual organizational objectives. Secondly, the end-product of this project is not the *Final Report* or the various documents produced, but the process itself which was established to meet the specific needs of coastal communities. The process is dynamic and will continue to evolve over the next several years to take advantage of the many changes occurring in the evolution of GIS, their hardware and software, and the types of data that can service the community. As the cost of equipment decreases by quantum leaps annually, no longer is a GIS capability beyond the average community, organization or agency, but can be acquired by anyone with a personal computer and data storage capability.

Goal

The goal of the project was to maximize the utility of the information that is collected in the Tampa Bay area by making it usable and available for coastal zone resource managers and all interested parties. This goal was achieved by meeting a series of objectives.

Objectives

1. **Implement the management structure** proposed in the Coastal Zone Management project, *"A Model Geographic Information System for Coastal Zone Management," Final Report*.
2. **Increase the "corporate value"** (information that has multi-agency/governmental value) of data that is collected in the Tampa Bay area by providing interested parties with procedures for becoming aware of the data before it is collected and allowing input into what data is being collected (Consensus Groups). This will allow the fine tuning of data to maximize its usefulness beyond the scope of the original project, which is important considering the limited resources and the cost of data collection. These activities will greatly reduce the

possibility of duplicative activities and enhance the probability of developing cooperative programs.

3. **Develop an automated dynamic survey** (accessible by phone modem and updated on a scheduled basis) of the data, archive that information and provide easy access to that information. This is imperative if information is to be preserved and not lost due to such things as changes of agency focus, personnel turnover, accessibility, etc.
4. **Increase the utilization of data** by developing a transfer mechanism using well defined protocols, **standard documentation formats and archive procedures.**
5. **Document the impacts and the benefits** of the activities of a regional coordinating council and make recommendations for improvements and the implementation of similar councils for all coastal areas Statewide.

In seeking to fulfill the objectives for meeting the overall goal of this project, nine specific tasks were enumerated.

Tasks

1. Provide staff and training for the Tampa Bay Regional Planning Council (TBRPC) to support the Tampa Bay Regional Coordinating Council (TBRCC) as proposed in the Coastal Zone Management project, *"A Model Geographic Information System for Coastal Zone Management," Final Report.*
2. Implement the management structure recommended in the Coastal Zone Management project, *"A Model Geographic Information System for Coastal Zone Management," Final Report.* This management structure will allow the development of multi-agency standards for geographic or spatial information, the institutionalization of those standards and procedures, and a method of archiving the information that is being collected so that it is available for future use.
3. Develop and institutionalize a multi-agency management structure to create a dynamic survey of geographic or spatial information. Survey the region and include the data on the *Florida Spatial Data Directory (FSDD).*

4. Develop, test and distribute software to utilize a distributed data directory to each organization (provided by the staff of the GMDNCC).
5. Coordinate data collection activities and develop data standards by Consensus Groups.
6. Conduct a workshop for the development of transfer protocols for the TBRCC.
7. Promote the knowledge of cooperative activities by initiating educational workshops for the Consensus Group Methodology, use of the *Florida Spatial Data Directory*, and the promotion of management tools that were developed in the previous grant (the Quality and Accuracy Report Templates and the Data Dictionary Templates).
8. Document the impacts and benefits of the activities of the TBRCC on participating organizations. Areas of concern will include the cost of data collection, exporting and importing data, cooperative efforts, success at increasing the "corporate value" of data and the time required for participating in TBRCC's activities.
9. Prepare a final report which will include the impacts and benefits of the activities of the TBRCC, Consensus Group Reports, effectiveness of the data directory and recommendations for the implementation of coordinating councils on a Statewide basis. Identify a continuing source of funds and develop a strategic plan to acquire funds to continue the activities of the TBRCC.

How the report is organized

This document is the synthesis of the activities of the collaborative project between the Governor's Office GMDNCC and the Tampa Bay Regional Planning Council entitled, "A Regional Coordinating Council for Coastal Zone Information." It addresses the objectives and tasks supporting each objective.

The document is divided into four sections as follows:

- I. Implementation of the management structure proposed in the Coastal Zone Management project, "*A Model Geographic Information System for Coastal Zone Management*," *Final Report*.

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- II. Development of a Strategic Plan to define the most compelling data issues of the Tampa Bay region and the formation of Consensus Groups to increase the "corporate value" of data that is collected in the Tampa Bay area.
 - III. An automated dynamic survey (accessible by phone modem and updated on a scheduled basis) of the data was developed to archive information and provide easy access to the information and development of a transfer mechanism using well-defined protocols, standard documentation formats and archive procedures to increase the utilization of data.
 - IV. Documentation of the impacts and the benefits of the activities for a regional coordinating council and recommendations for improvements and the implementation of similar councils for all coastal areas Statewide.

CHAPTER I

Chapter I

THE MANAGEMENT STRUCTURE

Chapter Objectives

1. Implementation of the management structure proposed in the Coastal Zone Management project, *"A Model Geographic Information System for Coastal Zone Management," Final Report.*

Problem

As identified in the *CZM Final Report*, the Tampa Bay region consists of approximately 12 governmental organizations and numerous municipalities. The Tampa Bay Regional Planning Council is the only broad-based regional organization that provides a common system for area wide coordination of federal, state and local governments, focusing on planning and problem resolution. In regard to Geographic Information Systems (GIS), there was previously no coordinating body that provided a directory identification of existing geographic information, GIS developers, or sources of information.

The tasks of this objective were to:

- Provide staff and training for the Tampa Bay Regional Planning Council (TBRPC) to support the Tampa Bay Regional Coordinating Council (TBRCC)."
- Implement the management structure recommended in the objective
- Develop and institutionalize a multi-agency management structure to create a dynamic survey of geographic or spatial information. Survey the region and include the data on the *Florida Spatial Data Directory*.

The initial task for the TBRPC was to create an organization of area agencies who were 1) users of GIS products; 2) had in interest in coordinating with other agencies and organizations to share GIS data; and 3) were interested in formalizing the structure to include staffing at appropriate levels to accomplish tasks as determined by the group. Identified as willing participants were the Administrators of Hillsborough, Manatee, Pasco and Pinellas Counties, the Executive Director of the Hillsborough County City-County Planning Commission, the regional directors of the Department of Transportation, Department of Environmental Regulation, Department of Health and Rehabilitative Services, Environmental Protection

Commission of Hillsborough County, Southwest Florida Water Management District, the TBRPC, the Pinellas County Property Appraiser. Using the structure recommended in the *CZM Final Report*, the TBRPC produced a Memorandum of Understanding (See Appendix 2) which provided for an elaborate management structure known as the Tampa Bay Regional Coordinating Council consisting of four bodies:

- The Tampa Bay Regional Coordinating Council (TBRCC) consists of the chief executives of the member agencies; originally all signers of the Memorandum of Understanding.
- The Regional Advisory Committee (RAC) is the primary working body of the process and consists of staff members from the TBRCC agencies. Additionally, other GIS users who were not Council participants such as the University of South Florida, the Florida Marine Research Institute of the Department of Natural Resources, and the West Coast Regional Water Supply Authority; were appointed to RAC membership. It was the function of the RAC to first devise a Strategic Plan that would guide Coordinating Council efforts (see Chapter II), and appoint consensus groups which would implement the recommendations of the Strategic Plan in seeking data with "corporate value" to process into the state's central electronic catalog, the *Florida Spatial Data Directory (FSDD)*.
- The Central Information Unit which is an autonomous body (currently one salaried staff position from the Tampa Bay Regional Planning Council with staff support) that acts as a Facilitator for the activities of the TBRCC to include chairing the RAC and providing administrative support for the Consensus Group chairs.
- The Consensus Groups, the primary working bodies, are composed of experts who create standards on designated data. There are multiple Consensus Groups with membership being dependent upon the topic under consideration. Their activities are determined by Issue Statements developed by Consensus Group chairmen in coordination with the TBRCC Facilitator and approved by the RAC.

The goals of the TBRCC are described as follows:

- To act as a coordinating body within the Tampa Bay region and between local, regional and state governmental agencies;
- To develop a Strategic Plan for the collection and sharing of data;

-
- To identify data needs at the regional level by developing an inventory of current data and a needs assessment with a priority list for development;
 - To adopt as much as feasible, data standards through the process of Consensus Group Methodology (See Appendix 1);
 - To review for adoption, standards related to data-sharing that are developed by the federal government or the State of Florida.

The process of creating the Coordinating Council was a slow, laborious process and while the agreement was effective as of January 15, 1992, the final signatures were not obtained until late May. In August, in accordance with the terms of the MOU, the Executive Director of the Hillsborough County City-County Planning Commission became the 12th person to become a member. The first official meeting of the TBRCC after all members had signed the MOU occurred on July 24, 1992. In the meantime, the Regional Advisory Committee (RAC), originally called the Interim Regional Advisory Committee (IRAC) until the MOU was signed, became the subordinate workhorse of the TBRCC and began meeting almost immediately in late December 1991, early January 1992. In a somewhat unorthodox manner, the IRAC/RAC was formed not by appointees from Council members, but by a call to meet of those interested in beginning the process of data sharing. The Regional Advisory Committee became the main engine driving the process and creating the actual data working bodies, called Consensus Groups which will be described in full in Chapter II. As the structure evolved in accordance with the MOU, the RAC created the Consensus Groups, reviewed their progress, and reported back to parent organizations progress being made.

The next chapter will deal with the mechanisms of identifying the areas in the Tampa Bay region most vital for data-sharing.

CHAPTER II

Chapter II

THE STRATEGIC PLAN AND CONSENSUS GROUPS

Chapter Objectives

2. Development of a Strategic Plan to define the most compelling data issues of the Tampa Bay region and the formation of Consensus Groups to increase the "corporate value" of data that is collected in the Tampa Bay area.

Problem

Most policies and issues addressed by local governments in the Tampa Bay region require some kind of geographic information analysis in order to make decisions, hence the need for Geographic Information Systems (GIS) as both a resource management tool and a planning tool. GIS, as opposed to conventional filing and tracking information systems, demands considerable effort in data collection and compatibility. It is essential that this data match an established standard format, otherwise information sharing becomes a difficult process. Consequently the data sharing process among local government agencies acquires, under these conditions, an important dimension: data in order to be shared must have standard formats and should be collected by standard procedures.

The ever-increasing complexity and interdependence of information, related to the issues on which local governments must make decisions, dictates the urgent need to identify issues of collective need among local agencies in a consensus manner. This chapter identifies elements that were essential for a Strategic Plan for the Tampa Bay Regional Coordinating Council (TBRCC). Issues and data were identified, prioritized and ranked in a consensus fashion as part of the plan's development. The TBRCC, as a multiagency coordinating body created to promote the sharing of information among local and state organizations, required a plan of action highlighting the main issues and data requirements that could be shared among agencies within the Tampa Bay region. The successful focus of a Strategic Plan element described in this chapter is by no means closed. On the contrary, it is an open plan to which can be added more issues. Its purpose is to provide guidance, justification, and the establishment of directions for the TBRCC.

The tasks of this objective were to:

- Coordinate data collection activities and develop data standards by Consensus Groups.

- Promote the knowledge of cooperative activities by initiating educational workshops for the Consensus Group Methodology, use of the *Florida Spatial Data Directory*, and the promotion of management tools that were developed in the previous grant (the Quality and Accuracy Report Templates and the Data Dictionary Templates).

The Need for a Strategic Plan

A multiagency management structure was imperative in order to facilitate the sharing of geographic data, hence the creation of the TBRCC. The main function of this management structure is to allow experts from various organizations to facilitate the development of standards. However, specific data requirements are often linked to those issues that management could address at any particular time. Consequently, a Strategic Plan containing the most relevant issues to be addressed in the Tampa Bay region within 1992-1993 was outlined (See Appendix 3 for the complete report). The important features will be presented in this chapter. This document enabled specific data requirements and standards to be prioritized and facilitated.

However, each organization has its own priorities and concerns in relation to the functions it is expected to perform within the region. Therefore, identifying issues of collective need is difficult at best. In order to produce a Strategic Plan that represented the collective thoughts of the Council, a consensus building device, called Futures Technique, developed for large, segmented organizations like the TBRCC was used. This technique has been designed to identify components of a Strategic Plan such as the future directions, communal needs, feasibility of tasks and the highest level of impact on any organization. The Strategic Plan uses a description of issues to conceptually identify areas of collective concern that could then be prioritized in a consensus manner. Once these issues (areas of collective concern) were identified, the information requirements (data sets and standard procedures) necessary to address each issue were generated. Standards and procedures are to be developed through Consensus Groups which focus their activities on transfer protocols, documentation, or specific data sets.

The following outline describes the steps to the technique used to devise the Strategic Plan:

STRATEGIC PLAN:

- Identify issues of concern in the Tampa Bay region and the corresponding information (data areas) needed to address or resolve these issues (Brain-Storming Session).

- Rank these issues (and consequently information requirements) by importance to the organization. (**Delphi-Evaluation Session**).
- Identify how each issue impacts other issues (cross-interaction between issues), with the purpose of defining the ten most "dominant" and the ten most "critical" issues in the Tampa Bay region in terms of data sharing requirements (**Cross-Impact Analysis Session**).
- Identify the data areas that are most important to a particular issue (the ten most critical issues), thus identifying the critical information requirements for the Tampa Bay region. (This allowed the development of the overall impact that each issue would have on the Tampa Bay region (Future Scenario) in terms of data sharing requirements (**System Impact Analysis Session**)).

Standards Development:

- Specific data sets from previously identified data areas are addressed by the Consensus Groups or Subcommittees.
- Straw man issue statements (for previously identified issues) are developed by the co-chairs of each Consensus Group, in conjunction with the Central Information Unit (facilitator).
- Data sets (related to previously identified issues) are documented through a data dictionary and quality and accuracy reports prepared by the Consensus Groups in conjunction with the Central Information Unit.

Goals of the Strategic Plan

The long term goals are to:

- Provide managers with the information they need to make sound and informed decisions throughout the Tampa Bay region.
- Maximize the use of available resources by sharing this information on a statewide and regionwide basis.
- Minimize redundant local government agencies efforts by reducing duplicative data collection activities among them.

Objectives of the Strategic Plan

The main objectives are to:

- • Outline the most dominant and critical issues (in terms of data requirements) that should be addressed by senior management in the Tampa Bay region within the years 1992-1993.
- • Identify the data areas associated to those most important and critical issues in the Tampa Bay region.
- • Identify the impact that will be generated by addressing these most important issues in the Tampa Bay region within the years 1992-1993.
- • Describe the future scenario that would emerge (in terms of data requirements) in the Tampa Bay region as a result of having addressed those critical and important issues.
- • Develop strawman issue statements for those most important issues in the region.
- • Document these data sets and develop standards via data dictionaries and quality and accuracy reports.

Methodology Used to Generate the Strategic Plan

A two-day Strategic Plan workshop was organized with the members of the working group. The purpose of the workshop was to use the experience and informed judgement of the working group as the main input to the Strategic Plan. Through the use of what is known as the *Futures Technique*, (a revised version of the *Simulation Conference Methodology* first developed by R. Armstrong, M. Hobson and E. Breto at the Institute of Local Government Studies, University of Birmingham, England, see Appendix 1 of the Plan at Appendix 3) a combined and progressive application of Brain-Storming, Delphi-Evaluation, Cross-Impact Analysis and Scenario Construction techniques were made. A working group established by the Interim Regional Advisory Council (IRAC) was asked to engage in the following procedures and activities:

- A Brain-Storming session was held on February 11, 1992 at the Tampa Bay Regional Planning Council's conference room. Attending members of the IRAC assembled into six groups of three members each. Each group was asked to list the five most relevant issues that should be addressed in the

Tampa Bay region during the years 1992-1993. The appropriate Brain-Storming forms were completed after each group discussion took place. Forms contained a list of the most relevant issues as seen by the various groups, as well as the five elements or factors that would be affected in the event a particular issue was to be addressed or resolved.

- A summary list of those issues identified during the Brain-Storming session was prepared and provided to the working group. With the help of the Delphi method, each individual completed a Delphi form which outlined each member's own evaluation of the issues under consideration in terms of:
 - The probability of each issue being addressed during the years 1992-1993 in the Tampa Bay region.
 - The significance of the issue for the Tampa Bay region as a whole.
 - The desirability of addressing the issue in the Tampa Bay region during the years 1992-1993.
 - A self evaluation of each member's own expertise and knowledge in relation to the issues listed.
 - The corresponding probability histograms for each issue were drawn and the level of consensus (standard deviation) among members was determined. An "impact score" number, which reflects such consensus level and the importance of each issue as compared to another one, was calculated. The main objective at this point was to draw a list of the ten "most important" issues (those with the highest impact score) and also the ten "least important" issues (those with the lowest impact score). Impact scores for each issue were calculated.
- As a third step, working group members met February 19, 1992 at the Hillsborough County Environmental Protection Commission's conference room to attend the second day of the Strategic Plan workshop, where they completed a "Cross-Impact Analysis" evaluation. The Delphi evaluation generated a matrix which displayed the ten "most important" issues, and also the ten "least important" issues.
 - The main objective was to establish how each issue (once it is addressed) may affect or impact other issues by increasing the chances of having to address both issues simultaneously; namely the "cross-

interaction effects" of one issue over another one. The final result was the identification of the ten "most dominant" and the ten "most critical" issues in the Tampa Bay region. These cross-interaction effects were then converted into "probabilities" of one issue affecting another one.

- • During the final phase of the workshop each working group member was asked to undertake a "System Impact Analysis" of those dominant and critical issues identified in the previous step. For this purpose, a NEXUS card was prepared displaying along its perimeter those factors suggested by the working group members during the Brain-Storming phase. Such factors are now considered to provide a description of the system, in this case the Tampa Bay region.
- • The task consisted of establishing the impact of dominant or critical issues upon each factor describing the system (Tampa Bay); thus identifying the critical information requirements for the Tampa Bay region (NEXUS card). By superimposing each of the NEXUS cards completed by every working group member, a cumulative and simultaneous future scenario (Strategic Plan) was thereby generated. (See Chapter III of the Plan at Appendix 3).

Results of the Brain-Storming Session

Members of the working group gathered into six groups of three members each. Based on their own judgement and experience and through individual group discussions, they were asked to make a list of five of the issues in the Tampa Bay region they believe need to be addressed in the years 1992-1993. They were also asked to identify the factors that would be affected, if it was to be assumed that the issues they have listed were addressed in Tampa Bay during the target years.

There were thirty issues identified by the working group. Duplicate and/or overlapping definitions of issues were deleted. What follows is a list of those clearly identifiable issues after this search took place.

TABLE #1
TAMPA BAY REGIONAL ISSUES

ISSUES	FACTORS THAT WOULD BE AFFECTED
1. Ground water quality data standardized to be shared by multijurisdictional bodies.	<ul style="list-style-type: none"> ● Number of Septic tanks ● Water demand ● Hazardous waste site location
2. Effects of polluting industrial facilities on human health and solid waste	<ul style="list-style-type: none"> ● Air quality measurements ● Water quality measurements ● Economic industrial indicators ● Number of regulatory agencies ● Data dissemination bodies
3. Effects of land use, zoning and redevelopment on the habitat and ecosystem	<ul style="list-style-type: none"> ● Storm water impact/flooding ● Socioeconomic indicators ● Traffic access and utilities
4. Water quality eutrophication and its impact on living organisms	<ul style="list-style-type: none"> ● Run off water quality and ● Atmospheric input measurements ● Land use total acreage
5. Traffic congestion reduction and road infrastructure	<ul style="list-style-type: none"> ● Network ● Airports ● Mass transit ● Land use

TABLE #1 (Contd)

ISSUES	FACTORS THAT WOULD BE AFFECTED
6. Standard population projections and statistics	<ul style="list-style-type: none"> • Water supply • Federal funding • Road's LOS and basic services supply
7. Overlap and duplicative services between state and county regulations	<ul style="list-style-type: none"> • Type of permits required • Type of licenses required
8. Local governments real estate statistics	<ul style="list-style-type: none"> • Type & number of housing units • Number of units for sale • Unit cost per type • Number of leasing units
9. Standard street mapping methodology: compatible names and addresses in all counties	
10. Creation of GIS data buffer encompassing common boundaries between agencies	<ul style="list-style-type: none"> • GIS data formats • Type of GIS systems
11. To establish a data exchange standard format: data dictionary quality and accuracy report	<ul style="list-style-type: none"> • Zoning categories • Land use types • Type of GIS systems
12. Base parcel maps for land use and transportation studies at local government level: modelling urban areas; E.g., land use location, trip generation etc.	<ul style="list-style-type: none"> • Economic resources commitment • Traffic congestion • Road infrastructure
13. Identify environmental resources by sensitivity level	

TABLE #1 (Contd)

ISSUES	FACTORS THAT WOULD BE AFFECTED
14. Vacant land inventory for parks and recreation provision to meet present and future population needs	<ul style="list-style-type: none"> • Demographic indicators • Total vacant land acreage • Total acreage of vacant land by ownership type
15. Law enforcement and jails	<ul style="list-style-type: none"> • Population growth • High crime area statistics • Road maps • Socioeconomic indicators
16. Socioeconomic indicators forecasting and regional development	
17. Water supply and infrastructure to meet population growth: surface and ground water characteristics	<ul style="list-style-type: none"> • Demographic indicators • Wells availability and location • Storm water sources
18. Air quality: population and traffic projections regarding pollution data	<ul style="list-style-type: none"> • Pollution sources: types/level • Mortality and rate of birth
19. Procedures in hurricane preparedness, evacuation and recovery planning	<ul style="list-style-type: none"> • Topographic information • Transportation network • Demographic indicators
20. Flood control: effects on land use area, drainage and erosion	<ul style="list-style-type: none"> • Road and housing infrastructure • Land use distribution and location • Topographic information

Results of the Delphi Evaluation

During the Delphi Evaluation Phase, members carried out an evaluation of those issues listed previously. Each member was provided a Delphi evaluation form which contained the list of issues. Four basic topics were evaluated.

- Probability of the issue being addressed in the years 1992-1993;
- Significance of the issue for the Tampa Bay Region;
- Desirability of the issue being addressed during the years 1992-1993;
- A self-evaluation of their knowledge and experience in relation to the issue under consideration.

Applying the equation described in Appendix 3, Page 5, an "impact score" number was calculated for each issue. This impact score number reflects the importance of one issue over another, reflecting a ranking of issues by their importance. Issues with the highest impact scores are considered (in this first ranking) the most important issues to be addressed in Tampa Bay in terms of data sharing requirements, as perceived by the working group. Issues which showed the lowest impact scores are considered to be the least important issues in the Delphi ranking evaluation. The following tables contain the lists of the most and least important issues according to the Delphi evaluation.

TABLE # 2

MOST IMPORTANT ISSUES
(Delphi Ranking)

1. Water supply infrastructure to meet population growth: surface and ground water characteristics.
2. Flood control: effects on land use area, drainage and erosion.
3. Water quality: eutrophication and its impact on living organisms.
4. Standard street mapping methodology: compatible names and addresses in counties.
5. Standardization of water quality data to be shared by multijurisdictional bodies.

TABLE # 2 (Contd)

-
6. To establish a data exchange standard format: data dictionary, data directory and quality accuracy report.
 7. Procedures in: hurricane preparedness, evacuation and recovery planning.
 8. Effects of land use, zoning and redevelopment on the habitat and ecosystem.
 9. Effects of polluting industrial facilities on human health and solid waste.
 10. Overlapping and duplicate services between state and county regulations; e.g. permits, licenses etc.
-

TABLE # 3

LEAST IMPORTANT ISSUES
(Delphi Ranking)

1. Base parcel maps for land use and transportation studies at local government level: modeling urban areas for land use location and trip generation.
 2. Create a GIS data buffer encompassing common boundaries between agencies.
 3. Identify environmental resources by sensitivity level: oil spill, habitat, etc.
 4. Air quality: population and traffic projections regarding pollution data.
 5. Traffic congestion reduction and road infrastructure.
 6. Standardization of population projections and statistics.
 7. Vacant land inventory for parks, beaches and recreation facilities to meet present population needs.
 8. Law enforcement needs and jails.
 9. Local government real estate statistics.
 10. Socioeconomic indicators forecasting for regional development.
-

Results of the Cross-Impact Analysis Session

A Cross-Impact Analysis of the ranked list of issues obtained during the Delphi evaluation was undertaken by the working group. A matrix displaying the ten most important issues, according to the highest impact scores from the Delphi evaluation, was provided to the working group. The ten least important issues were forming the column titles (see Appendix # 4 of the Strategic Plan at Appendix 3). The task was to establish how the most important issues (assuming they have been addressed) would impact or affect the least important issues. This impact would mean interdependence (cross-interaction) between two issues, suggesting that such issues may have to be addressed simultaneously.

The main objective of this phase was twofold: to identify and rank the most dominant and the most critical issues (thus identifying the critical information related to those issues), and to observe if any issue has been reshuffled in its ranking importance. A review of the Cross-Impact Analysis results showed the following (revised) list of issues and the new "average" impact score which has been assigned to them.

TABLE # 4

MOST DOMINANT ISSUES
(Cross-Impact Ranking)

1. Water supply infrastructure to meet population growth: surface and ground water characteristics.
 2. Water quality: eutrophication and its impact on living organisms.
 3. Flood control: effects on land use area, drainage and erosion.
 4. Standard street mapping methodology: compatible names and addresses in counties.
 5. To establish a data exchange standard format: data dictionary, data directory and quality & accuracy report.
 6. Standardization of water quality data to be shared by multi-jurisdictional bodies.
 7. Procedures in: hurricane preparedness, evacuation and recovery planning.
 8. Effects of land use, zoning and redevelopment on the habitat and ecosystem.
 9. Effects of industrial pollution on human health and solid waste.
 10. Overlapping and duplicate services between state and county regulations; e.g., permits, licenses, etc.
-

It should be noted that four issues were reshuffled after the Cross-Impact analysis took place:

- The number one and most dominant issue that should be addressed in Tampa Bay in relation to data sharing continues to be: Water supply infrastructure to meet population growth/ground and surface water characteristics.
- The water quality eutrophication and its effect on living organisms has now been ranked as the second most "dominant" issue in Tampa Bay in terms of data sharing among local agencies.
- Flood control and its effects on land use area, drainage and erosion has now been considered the third most dominant issue as a result of the Cross-Impact analysis undertaken by the working group.
- The establishment of a standard street-mapping methodology with compatible names and addresses in counties continues to be considered the fourth most dominant issue that should be addressed by Tampa Bay local agencies.
- The establishment of a data exchange standard format though a data dictionary quality and accuracy report is the fifth most dominant issue that should be addressed in the near future according to the working group.

Results of the System Impact Analysis Session: Future Scenarios

During the final phase of the workshop the working group carried out a "System Impact Analysis" of those dominant issues identified previously in the Cross-Impact Analysis phase. A "NEXUS" card was prepared (see Appendix 5 of the Strategic Plan at Appendix 3) which displayed along its perimeter those factors suggested by the working group during the Brain-Storming session. These factors now provide a consensus of collective data concerns shared by Tampa Bay area local government and affected agencies.

The major task was to identify the impact a dominant issue would have over each factor, or data area, describing the system (Tampa Bay), thus identifying the critical information sharing requirements for the Tampa Bay region during 1992-1993.

The objective of this phase was twofold: to obtain the final ranking importance of dominant issues in terms of its probability of being addressed, and to identify the corporate value of those data areas associated with them.

A NEXUS board has also been prepared which allows the measurement of the future cumulative short-term impact of each issue over the above mentioned factors, and consequently defines its "corporate" value. By superimposing each of the NEXUS cards completed by the working group on this NEXUS board, the two following cumulative future scenarios were generated:

Scenario 1

**Need to be
Addressed
(Percentage
Probability):**

Impacted Issues

1) 80%

Establish data exchange standards

Implies

a) The development of a quality and accuracy report and data dictionary on data of corporate value

b) Protocols for data exchange.

2) 75%

Water quality data

Critical/Sensitive Issues

a) 70% Population and traffic projection

b) 53% Parallel traffic congestion/road infrastructure regarding air quality

c) 34% Base parcel maps for land use/transportation studies

3) 72%

Procedures concerning hurricane preparedness, evacuation and recovery plan.

Critical/Sensitive Issues

- a) 64% Population / traffic projections
- b) 49% Traffic congestion / road infrastructure
- c) 32% GIS buffer with common boundaries to share data between local government agencies
- 4) 66% **The effects of polluting industrial facilities on human health and solid waste.**

Critical/Sensitive Issues

- a) 56% Parallel population and traffic projections
- b) 43% Traffic congestion and road infrastructure
- c) 28% Environmental resources by sensitivity levels (oil spills, hazardous waste, etc.);
- d) 28% Creating a GIS buffer with common boundaries to share data between local government agencies.
- 5) 65% **The effect of land use, zoning and redevelopment on the habitat and ecosystem**

Critical/Sensitive Issues

- a) 61% Population and traffic projections
- b) 46% Road infrastructure and traffic congestion
- c) 30% Parcel maps for land use and transportation studies at the local government level

- 6) 65% Flood control and its effect on land use designation, drainage and erosion.**

Critical/Sensitive Issues

- a) 60% Population and traffic projection;
- b) 45% Traffic congestion and road infrastructure;
- c) 15% Local government real estate statistics on housing costs, housing for sale/rent;
- d) 30% Identifying environmental resources by sensitivity levels;
- e) 11% Standard population projections.

- 7) 65% Water quality eutrophication and its impact on living resources**

Critical/Sensitive Issues

- a) 59% Population and traffic projections
- b) 30% Identification of environmental resources by sensitivity levels
- c) 30% Maintaining a GIS buffer with common boundaries designed to share data between local government agencies

- 8) 64% Overlapping and duplicate services lent by state and county agencies**

Critical/Sensitive Issues

- a) 55% Population and traffic projections
- b) 27% Maintaining a GIS buffer with common boundaries designed to share data between local government agencies

-
- | | | |
|----|--------|---|
| | c) 27% | Identification of environmental resources by sensitivity levels |
| | d) 27% | Base parcel maps for land use and transportation studies |
| 9) | 62% | Water supply infrastructure to meet population growth, including both ground and surface water characteristics |

Critical/Sensitive Issues

- | | | |
|-----|--------|---|
| | a) 61% | Population and traffic projections |
| | b) 46% | Traffic congestion and road infrastructure |
| | c) 30% | Maintaining a GIS buffer with common boundaries to share data between local government agencies |
| 10) | 61% | Development of a standard street mapping methodology with compatible names and addresses in every county |

Scenario 2

Scenario 2 describes the situation that would emerge if the ten most important and dominant issues described in Scenario 1 were addressed in the Tampa Bay region. It identifies the impact generated by each dominant issue (in terms of probabilities) over the data areas included on the NEXUS card; thus identifying the corporate value of each data area. The underlying assumption is that the higher the probability that an issue (of collective concern) may impact a data area, the greater the "corporate" value of the data area will be. By the same token the greater the corporate value of data, the more need there will be to share such data among local agencies in the Tampa Bay area.

Therefore if the ten most dominant issues in the Tampa Bay area listed in Scenario 1 were addressed, the following information related to these issues will have to be shared among local government agencies:

-
- 1) 100% Common geographic information systems data formats
 - 2) 64% Information on surface and ground water characteristics
 - 3) 63% Data on storm water sources having corporate value
 - 4) 58% Information on standard data collection formats related to the ten most important issues listed
 - 5) 47% Information on data collection methods will have corporate value among local agencies in the region
 - 6) 45% Data on environmental effects on the habitat
 - 7) 44% Information regarding general data on wells would have corporate value
 - 8) 43% Data on the receiving-water effects on Tampa Bay
 - 9) 42% Water supply data
 - 10) 40% Information regarding storm water flooding measurements will have corporate value

Recommendations

Four of the six objectives slated for the Strategic Plan have now been achieved. First, the most important and critical issues (in terms of data requirements) which should be addressed by senior management in Tampa Bay have been identified. Secondly, the data areas associated to those most important and critical issues have been clearly identified. Also, the impact that would be generated by addressing these issues, as well as the future scenarios that would emerge as a result have been described. The following is a list of recommendations that are being pursued to fulfill the two remaining Strategic Plan objectives:

1. At least five Consensus Groups are necessary to address the following issues:
 - Development of data exchange standard formats for information transfer and information sharing among local government agencies.
 - Development of standards for water quality data to be shared by multijurisdictional bodies.

-
- Procedures in hurricane preparedness, evacuation and recovery planning.
 - Demographic and traffic projections
 - Traffic congestion and road infrastructure.

Chairmen for these consensus groups should develop a strawman issue statement for each issue.

2. Seven Technical Advisory Committees should be formed to define and document (via data dictionary and quality and accuracy reports) the following specific data sets:

- GIS data formats
- Surface and ground water characteristics
- Storm water sources
- General data on wells
- Storm water flooding measurements
- Water supply
- Receiving-waters effects on Tampa Bay

The work of the Strategic Plan served to document the problems known to exist in the Tampa Bay region with a view towards providing commonality of approach to data gathering for cataloging in the *Florida Spatial Data Directory (FSDD)*.

CONSENSUS GROUPS

The mechanism employed for approaching the tasks listed above was the appointment by the Regional Advisory Committee of Consensus Groups designed to work individual issues. As identified in the CZM Report, the following is a summary of the process:

- Participants are identified by the Regional Advisory Committee and a chairman is selected.

-
- An issue statement is developed by the chairman and submitted to the Regional Advisory Committee. The issue statement is the heart of the process, providing a roadmap for each consensus group in reaching its objectives. This document:
 - Provides a charter and justification for participation;
 - Establishes an action plan with goals, objectives, tasks, and timelines;
 - Provides documentation of actions (a corporate memory of activities) allowing issues to be placed on hold and when resurrected the work can continue where it was left off, even if the membership has completely changed; and
 - Acts as a project manager for the facilitator and co-chairs.
 - A Data Descriptive Summary is completed for each set of data (See Appendix 4).
 - A meeting is held to decide which sets of data have "corporate value."
 - Each identified set of data having "corporate value" is documented by the completion of a Quality and Accuracy Report and a Data Dictionary (See Appendix 1).
 - Enhancements to the data must be made following a written procedure, the onus being on the part of the enhancement requestor.
 - All documents produced as part of the process are to be available to all participants prior to a substantive meeting.
 - Standards are agreed upon utilizing the Quality and Accuracy Report and the products of the Data Dictionary.
 - A Consensus group is finalized by the chairman and submitted to the Regional Advisory Committee.

Recognizing that the Strategic Plan was to serve strictly as a guide and not as a mandated approach, three groups emerged following the development of the Strategic Plan.

STORMWATER MANAGEMENT CONSENSUS GROUP

The purpose of this group is to identify, coordinate and facilitate stormwater data exchange among federal, state, regional and local agencies assessing stormwater management. The control of the quantity and quality of stormwater runoff is of primary importance throughout the state of Florida. Stormwater runoff management is essential for flood control and for the control of contaminants contained in runoff, which can result in surface water degradation in rivers, lakes, and estuaries. The Florida Department of Environmental Regulation's Stormwater Division states that stormwater runoff is now considered the state's biggest water pollution threat to the quality of Florida's surface waters. Recent research (reviewed by Henigar & Ray, Inc., for the Southwest Florida Water Management District (SWFWMD) Surface Water Improvement and Management Program (SWIM), 1991) showed that stormwater-associated pollution was responsible for

- 80-85 percent of the heavy metal loading to Florida's surface waters;
- Virtually all of the sediment deposited in state waters; and
- Nutrient loads comparable to those in secondarily treated sewage effluent discharges.

Recent revisions in stormwater management regulations at all levels of government reflect the growing concerns with water quality issues associated with stormwater runoff and its management. (See Stormwater Management Consensus Group Issue Statement, Appendix 5).

Problem Statement:

- The scope and effectiveness of current policies and regulations relating to stormwater management throughout the region are not fully documented and not fully known.
- Water quality data collection programs or permit applicants for regulatory requirements are not always complete enough to allow valid comparisons of data or extrapolation of results to other areas of interest.
- High concentrations of metals and DDT are present.
- Indications of sediment contamination from agricultural runoff have been found in several areas of Tampa Bay.

- There is no regionwide mechanism for the coordination of stormwater management data collection efforts, leading to the potential for duplicated effort and inefficient use of the tax dollar.
- Localized solutions are often implemented due to jurisdictional limits where technical recommendations suggest the need for wider ranging solutions on a regional basis.

Goal: To improve information and data sharing among managers of stormwater runoff and related environmental effects.

Objectives:

1. Identify existing and needed data for use by managers of stormwater runoff in order to fulfill all permitting requirements for National Pollutant Discharge Elimination System (NPDES) and other local requirements (See Appendix 1 to Appendix 5).
2. Develop quality and accuracy reports for each targeted data set consistent with STORET requirements.
3. Integrate as far as possible, data management protocols developed by the Tampa Bay National Estuary Program (TBNEP).
4. Identify potential improvement areas, especially areas of duplication in governmental management of stormwater issues and assess the ability of existing programs to meet management goals.
5. Facilitate the coordination and exchange and distribution of information collected as a part of regulated stormwater management programs.

Status of Group:

The group, composed of natural resources planners and technical experts met on a monthly basis to refine the tasks listed in the Issue Statement. Currently, the group is compiling data for submittal to the Data Directory using a matrix provided by the chair. One important component of this effort is the standardization and coordination of data collection and reporting procedures between and among regulatory entities. This standardization is crucial to allow comparison and evaluation between regulated sites. Currently, all agencies working with stormwater water quality samples are requested to

submit their data to the State DER in its program called "STORET," which potentially eases the task for this Consensus Group. To ease this process, a STORET Workshop was conducted the DER STORET Coordinator, Dr. Dave Gowan, on September 17, 1992, at the Tampa Bay Regional Planning Council. This workshop was attended by water quality specialists from throughout mid-Florida. Upon completion of submission of data entries, the Quality and Accuracy Report and Data Dictionary processes will be completed.

DEMOGRAPHIC INFORMATION CONSENSUS GROUP

The purpose of this group is to determine regional needs for demographic data and establish guidelines for the development and maintenance of discrete demographic summaries and projections. (See Issue Statement, Appendix 6). Interestingly enough, demographic data was originally rated far down on the list of subjects identified in the Strategic Plan. However, it became evident that demographic considerations cut across the interests of all subject areas and are vital in work planning. Demographic information represents the single most important independent variable in evaluation and analyses associated with local government comprehensive plan monitoring and compliance evaluation. Though standard sources of population information exist and will continue to do so, these sources must be reviewed and manipulated prior to use in the evaluation of comprehensive plan elements. The principle shortcomings of current sources are the limited geographical delineation of estimates and the lack of quality population projection techniques that can be used by communities in future facilities planning. The availability of modern geographical data bases related to the 1990 Census and other land data sources that are under development in communities can assist greatly in development of population distribution and projection methodologies. It is imperative, however, to coordinate the data collection techniques and evaluation methods related to population to avoid substantial problems in using this information in multi-jurisdictional evaluations similar to those required by the Tampa Bay Regional Planning Council and the Southwest Florida Water Management District.

Demographic information represents the most common independent variable used to establish Levels of Service (LOS) related to growth management plan elements in Florida local governments. Population summaries also represent data that are used strategically by most state and regional agencies for a variety of critical planning and service delivery functions. Therefore, population estimates for various jurisdictions and zones used in plan element compliance evaluation should be as accurate as possible. To this point, official population estimates have consisted of decennial census information estimates for small geographical areas and annual population updates from the Bureau of Economic and Business Research (BEBR) that are produced for each city/place and county. The advent of modern automated land information systems has opened the door to a large number of potential methods for more accurately distributing official population updates, generating accurate population updates locally, generating discrete population projection estimates, and portraying these numbers dynamically and effectively using mapping options available in geographic information systems. A cursory review of current development strategies for population data administration indicates that most agencies are considering a wide variety of approaches to the problem.

Problem Statement

To prevent possible inconsistencies among communities in population estimates, it is necessary to coordinate development of population and related data bases and address the following factors which hinder consistent demographic information management:

- The varied application of demographic data in plan elements, both in the geographic jurisdictions within which plan compliance must be monitored, and use of population as an independent variable in Level of Service (LOS) compliance evaluation;
- Population estimates for cities and counties are only available annually;
- Lack of standard methods for quality controlling, distributing, or projecting existing population estimates;
- Lack of focused application of modern census demographic data products to assist in resolving problems listed above;
- Lack of information on other land information data sources that could assist in demographic data administration such as construction permit and property appraisal information;
- Lack of focused application of geographic information system technology for demographic data administration other than that supplied by individual GIS vendors;
- Lack of common understanding of the impact perennial and seasonal population and/or dwelling unit information has on LOS assessments and standards; and
- Problems managing demographic information in services areas that fail to nest consistently.

Goal: Develop a consistency in demographic measurement with standardized terminology and protocols that will permit access, transfer, and use of data across all levels of government.

Objectives:

1. Identify methods for generating small area population estimates and projections.
2. Prepare a catalog documenting data sources identified as useful in population estimation and projection.
3. Develop protocols for transfer of population related data among participants.
4. Develop plan to support consistent population estimation and projection methods at agencies within the region.
5. Provide for the future by keeping data bases updated within each organization.
6. Increase user awareness of the demographic data bases, the complexity of their structure and how they may be used.

Status of Group:

This group, originally composed of county population/GIS specialists and later broadened to include demographic forecasting and planning personnel from business and industry, has met regularly to discuss and document techniques for developing population distribution and aggregation estimates and propose a standard strategy for generating estimates that are useful for regional activities. The chair has circulated a strawman review method for this evaluation that has served as a basis for discussion. Discussion has centered around an initial proposed structure of four critical population evaluation data bases. Elements discussed were 1) parcel attribute data base; 2) construction permits; 3) future land use; and 4) principal evaluation geozone data bases. Additionally, population projection methods involving general requirements, technique options, and potential data sources for small area projections as well as three to five principal data sources needed for alternative population evaluations were also addressed. This multi-discipline group will continue to examine ways of standardizing forecasting and projection techniques.

COCKROACH BAY DATA CONSOLIDATION

This group, the last to become appointed, was the first completed because it was in response to a specific tasking. Tasked with amending the Comprehensive Plan for the preservation and cleanup of Cockroach Bay, the Hillsborough County City-County Planning Commission asked the Environmental Protection Commission of Hillsborough County to identify a variety of available natural resource layers and data for the development of a plan for the management of Cockroach Bay and to transfer the data in useable format to the Hillsborough County Geographic Information System Department. Beginning in January, 1992, Hillsborough County Commissioner Ed Turanchik formed a task force to discuss a number of issues relative to the Cockroach Bay Aquatic Preserve. The Preserve bounds an area which includes the headwaters and oligohaline habitat for the eastern portion of the Middle segment of Tampa Bay (See Figure 1 of the Issue Statement at Appendix 7). Cockroach Bay has some of Tampa Bay's most pristine habitat and generally good water quality. The Federal Coastal America's program has recently funded \$300,000 toward an estuarine restoration project on Cockroach Bay's northern shore and the State of Florida's SWIM program has dedicated at least twice as much money toward the same restoration project. Additionally, there has been an award of a \$400,000 EPA Clean Water Act Section 319 (h) Non-point Source Pollution Set-Aside grant to fund construction of a stormwater system designed to treat agricultural runoff into Cockroach Bay. This grant was designed specifically to address pollution abatement strategies for sediment contamination problems from agricultural runoff. Once in place, such massive public expenditures along with the rare and pristine nature of the Bay carry a public mandate to protect the investment and manage for the protection of the resource.

The Task Force formed a subcommittee under EPC coordination to analyze what data might be pertinent to the further implementation of the strategy and where the data might reside. The subcommittee developed a matrix of data types and a list of the potential producers of that data. The plan amendment called for the Hillsborough Board of County Commissioners (BOCC) to establish the Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) who will be the primary user but data will be fed to them after consolidation of data in the County's GIS under the guidance of the Hillsborough County GIS Coordinator.

However, although much data are available to help implement a management strategy, it has been difficult for the Planning Commission to easily avail itself of that data. There is also a developing sense of urgency that plan development proceed quickly, not only because of the expensive restoration project on the Bay's north shore, but also because there is initial evidence already accumulating that suggest that there are chronic and newly recognized problems in the Bay related to water

quality and seagrasses. For the long run, both the seagrass and water quality issues are addressed in the management strategy. There will be, undoubtedly, many other issues that could be addressed by the strategy as it is developed by CAPMAT, but the Task Force concluded that no strategy implementation should take place until certain base natural resource data were compiled by the County GIS Department and made available to the CAPMAT. For now, the planning area is bounded on the west by Tampa Bay, on the north by the north shore of the Little Manatee River, on the south by the Manatee County line, and on the east by Highway 301. Because drainage basins will undoubtedly be needed to implement the management strategy, this area may be expected to enlarge after some discussion.

Problem Statement:

- Seagrasses are suffering long-term, cumulative damage from boat propeller scarring.
- Chlordane and Mirex (two agricultural pesticides toxic to freshwater and marine organisms) levels are high.
- Stormwater is a pollutant despite new regulations.
- Shellfish harvesting is prohibited due to pollution.
- High concentrations of metals and DDT are present.
- Exotic plant encroachment threatens biodiversity in the coastal zone.
- Agricultural runoff is a major source of pollution.
- Habitat modification and destruction are prevalent.

The wetlands and uplands surrounding Cockroach Bay are currently highly disturbed, with almost three-fourths of the total area in farm fields, mined areas, and residential (trailer park) areas. More than 4,300 acres of low-salinity marshes and associated coastal upland habitats (important wildlife and fish habitat) have been lost to development in the Tampa Bay watershed. Ongoing Cockroach Bay Restorative Alliance (COBRA) restoration efforts will rehabilitate some of these critical habitats in the Cockroach Bay Basin.

Goal: Compile and deliver to the Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT), base natural resource information necessary to implement the management strategy for Cockroach Bay.

Objectives:

1. Identify data needed by CAPMAT for the implementation of a Cockroach Bay management strategy.
2. Develop quality and accuracy reports for each targeted data set.
3. Integrate as far as possible, data management protocols developed by the Tampa Bay National Estuary Program (TBNEP).
4. Provide an orderly and efficient transfer of data to external users.

Status of Group:

After completing survey questionnaires, the group completed the data gathering process. The Group Chairman had several meetings with the County CIS coordinator to discuss prioritizing the list of available data layers. The producers of multiple data layers (e.g. SWFWMD, EPC, FDNR/MRI, Hillsborough County) were selected as the first priority for data transfer. Because of the work involved, a decision was made to try to import data in its existing format and to delay manipulation of the data (e.g. matching, scale correction to base map, etc.) until the actual need for more specificity arose from within CAPMAT. Data Descriptive Summaries were forwarded to the GMDNCC for inclusion in the *FSDD*. An outgrowth of this Group was interest by the National Estuary Program in documenting the results of data sharing which was accomplished by the EPC of Hillsborough County under an NEP contract. The results were highly favorable and will be discussed in more detail in Chapter V.

Status of Consensus Groups

The consensus groups continue to meet and refine work being performed. During the past two Regional Advisory Committee meetings, proposals were made for the chartering of two additional groups. The first, as an outgrowth from Hurricane Andrew, was to form a new group to address planning for safeguarding all data assets during disaster. The work of this group will dovetail with work ongoing in Tallahassee convened by the Governor. Members of the Emergency Management community were invited to attend this Regional Advisory Committee meeting and provided valuable input. The RAC gave enthusiastic approval for the formation of this new group to be called the Disaster Planning and Data Asset Recovery Consensus Group.

The second proposal is for a transportation issues consensus group and is in keeping with priorities set in the Strategic Plan. This group is only in tentative stages until an issue statement is developed.

The next chapter will briefly discuss the electronic means developed for the acceptance, storage, and update of data placed within the *Florida Spatial Data Directory*.

CHAPTER III

Chapter III

THE ELECTRONIC CARD CATALOG and THE PROTOCOLS

Chapter Objectives

3. An automated dynamic survey (accessible by phone modem and updated on a scheduled basis) of the data was developed to archive information and provide easy access to the information.
4. Development of a transfer mechanism using well-defined protocols, standard documentation formats and archive procedures to increase the utilization of data.

Problem

Approximately 80 percent of policy and regulatory issues in government require geographic information to make decisions. Coupled with the high growth in Florida, the increased interest and development of GIS is understandable. GIS systems, unlike non-geographic "tracking type systems," require a total integration of all elements to produce an accurate and usable product. Data collection efforts are very expensive which has resulted in an interest by many organizations to acquire data that has already been bought and compiled elsewhere.

The GIS community in the Tampa Bay region does not enjoy the luxury of common systems or programs which make the sharing of data difficult, depending on the type of data to be transferred. The various requirements which generated the initial software requirements for databases and graphics make standard transfer protocols very difficult to define. As identified in the *CZM Report*, the two major issues involved in the transfer of data are the transfer protocols or mechanisms for actually performing the transfer; and the documentation. Various groups studying these problems to include the Protocols Transfer Workshop held on December 9, 1992, identified documentation as being the most critical and necessary. There was great concern over the amount of information available upon transfer. However, the enormous time-consuming tasks necessary to completely document the information made this task of more concern to the importer than to the exporter. Ideally, as future data sets are defined and created, documentation will be accomplished with the creation of the data and the labor-intensive task of data-documentation after the fact will pose fewer problems.

"Metadata" are data about data. They provide such information as the characteristics of a data set, the history of a data set, and organizations to contact to obtain a data

set. Standardized metadata elements would provide a means to document data sets within an organization, to contribute to catalogs of data to help persons find and use existing data, and to aid users to understand the contents of data sets that they receive from others. The problems are not confined to the Tampa Bay region, but are in fact, worldwide as technology expands the possibilities of GIS. In June 1992, the Federal Geographic Data Committee (FGDC) sponsored an Information Exchange Forum on Spatial Metadata. One issue discussed by the participants was the need for a common set of metadata elements for use in GIS, in catalogs of data, and for data transfer. The FGDC is sponsoring a six-month public test and comment period so that the spatial data user and vendor communities can review and refine the standard. The FGDC intends that the resulting content standard for spatial metadata will be used within the Federal community, at a minimum. Much of the standard concentrates on metadata required for digital spatial data. Much, if not most, spatial data are in analog form -- maps, aerial photographs, gazetteers, and other documents -- and many believe a standard should also address spatial data encoded using these media. This approach would provide users with a common set of information on a wider array of data. Until work is completed, an alternative approach would be software that stores and indexes unstructured text files, and supports field searching as one would do through a conventional data base. An example of such software is the public-domain Wide Area Information Server (WAIS) software. This software would operate on ASCII files that could be output by a metadata generator or GIS package. By defining specific metadata fields and allowing them to be written into an ASCII text file, the software would be able to perform random text-searching and more sophisticated, structured queries. For example, the WAIS-like indexes could allow access to phrases like "Florida" anywhere in the file as well as a specific query of blocks of text related to "Florid." The Directory Interchange Format (DIF) developed by NASA for global data bases is a good example of such a flexible structure.

Once data are documented, a central catalog is necessary for users to be able to access to determine 1) what is available, 2) who owns and maintains the data, 3) what format are the data in (documentation) and 4) how good is the data. Many organizations throughout the country are seeking to meet similar needs through the familiar bulletin board/modem access.

The tasks of this objective were to:

- Develop, test and distribute software to utilize a distributed data directory to each organization (provided by the staff of the GMDNCC).

- Conduct a workshop for the development of transfer protocols for the TBRCC.

The *Florida Spatial Data Directory (FSDD)* was created in Tallahassee as a bulletin board accessible by modem to be used as a card catalog for filing data descriptive summaries of data sets defined for cataloging by the consensus groups. The *FSDD* has undergone a series of revisions since creation is still evolving. However, a program has been completed and the draft users manual appear at Appendix 8. Additionally, data descriptive summaries entered as part of the consensus group process also appear at Appendix 9.

THE PROTOCOLS AND DOCUMENTATION

A protocols transfer and documentation workshop was held on December 9, 1992, with GIS experts from the member community (see Appendix 10 for list of attendees). The group tackled the problems of both transfer mechanisms and documentation. The results of the workshop appear as follows:

1. Physical Transfer of Data

The group collectively agreed that this is not an issue but needs to be stated as such. The lineage issue today is the real key to data transfer and users must concentrate on data structure, rather than technology, which changes too fast to track. Most standard software today contains the necessary transfer tools necessary to import from one format to another. It was agreed that each organization would identify the formats by which they transfer data to be included in a final report.

2. Documentation

The major issue at stake was the cost of documenting versus the cost of not documenting (hard dollars versus soft dollars). Implementation was an issue in so much as there is a need to define the workload. There was an emphasis on developing strong recommendations but still allowing discretion by the developer.

- a. Applications - what can the vendors supply in regard to automatically documenting the data. It was the desire that this could be achieved but it was recognized that for meaningful documentation it would require human input.

b. Base data sets

Base data sets are those from which derivations are made. All base data sets that have corporate value should be documented. There was some question as to how those data sets would be identified so the agency would know the workload. It was stated that this work group was focusing on the issues and the prioritization would be a product of the consensus groups.

1. Historical

Some of these are lost causes due to the inability to properly document aged data as well as the time required to perform the task. There will be a need to prioritize those data sets that need to be documented.

2. Future

These data sets can be documented as part of contractual arrangements.

c. Transformations

This issue needs to be addressed as the user community continues to work the issues. One specific issue to discuss is how does one decide what transformations to document.

d. Structured Documentation Tool

The project officer of the Growth Management Data Network Coordinating Council will provide a beta test version for the participants so that the difficulty may be tested.

e. Management

Various forms of organizational structure were discussed as they seek to identify what data sets to document. This is basically the work of the consensus groups which will recommend accordingly and will recommend to the Regional Advisory Committee, those decisions for resolution which must be brought before the Tampa Bay Regional Coordinating Council for implementation.

f. Card Catalog

We already have in place mechanisms for differing levels of documentation to include the Card Catalog, Quality and Accuracy Report, Data Dictionary. The "entry" level of information is provided by the Data Descriptive Summary. This summary is produced for each set of data to provide a preliminary card of information about data contained in the Catalog (See Appendix 4).

The Quality and Accuracy Report is a standardized template for reporting on the quality and accuracy of the data. Once data is identified as having "corporate value" a Quality and Accuracy Report is prepared in accordance with the format in the Appendix 1 attachment to Appendix 1.

The Data Dictionary is a standardized template for reporting on the definitions and structure of individual data elements. Once data is identified as having "corporate value" a Data Dictionary Report is produced in accordance with the format found in the Appendix 2 attachment to Appendix 1.

Recommendations

- Finally, the workshop agreed that strawman recommendations must be developed for Council approval. These recommendations must be useful but not overly burdensome to data producers. As part of the dynamic, ongoing process, these recommendations will be defined and presented.



Chapter IV

THE BENEFITS and the FUTURE

Chapter Objectives

5. Documentation of the impacts and the benefits of the activities for a regional coordinating council and recommendations for improvements and the implementation of similar councils for all coastal areas Statewide.

Problem

To make informed decisions on coastal zone issues, planners and resource managers must have the ability to integrate and analyze the vast amounts of information that are available. The counties, state agencies and increasingly, communities of the Tampa Bay region have relied upon Geographic Information Systems to provide the capability needed to approach the most difficult growth management issues. At stake during the voluntary period of collaboration created by the formation of the Tampa Bay Regional Coordinating Council for data management was identification of common, across-the-board issues that would make data-sharing desirable; and the willingness of Council participants to engage in the time-consuming, but necessary structure devised for collaboration and cooperation. An original purpose in developing the TBRCC was to avoid cost by maximizing the value of the data to all parties through the sharing/receiving of data, eliminating major costs; through the elimination of duplicative activities, sharing of ideas, and to preserve the data's value through standard documentation. This chapter will identify successes and progress to date.

The tasks of this objective were to:

- Document the impacts and benefits of the activities of the TBRCC on participating organizations. Areas of concern will include the cost of data collection, exporting and importing data, cooperative efforts, success at increasing the "corporate value" of data and the time required for participating in TBRCC's activities.
- Prepare a final report which will include the impacts and benefits of the activities of the TBRCC, Consensus Group Reports, effectiveness of the data directory and recommendations for the implementation of coordinating councils on a Statewide basis. Identify a continuing

source of funds and develop a strategic plan to acquire funds to continue the activities of the TBRCC.

One serendipitous contribution to this effort evolved from the work of the Cockroach Bay Data Consolidation Consensus Group. Early in its formation, the Environmental Protection Commission of Hillsborough County obtained a small grant from the Tampa Bay National Estuary Program to, *inter alia*, document the usefulness of consensus group methodology as developed by the TBRCC. The demonstration project concentrated on the process of data-sharing and its objectives included:

- Demonstrate a locally coordinated initiative in data sharing to protect an important Bay resource.
- Identify problems or impediments to using the Consensus Group methodology developed by the Regional advisory Committee for this type of project.
- Recommend solutions to these types of impediments for future implementation.
- While keeping the data sets closely linked with the respective producer agencies, demonstrate the consolidation of data for the specific use of the Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) and other agencies and researchers.
- Test and demonstrate the feasibility of using the *Florida Spatial Data Directory* as a Central Subject Directory for the TBNEP, (*Interagency Data Sharing Through GIS for Cockroach Bay*, Charles M. Courtney, Environmental Protection Commission of Hillsborough County, September 1992, p. 5; hereafter cited as the *EPC Report*.) (See Appendix 11).

The results of the demonstration project often paralleled those experienced on other consensus groups as well. Each consensus group requested the completion of Data Descriptive Summaries prior to initial meetings of the groups. In few cases was this accomplished and additional time was required to complete the task through the use of a matrix of agencies matched with data held. This process will be strengthened for future consensus groups.

Another phenomenon which existed involved the formal versus informal structure of the organization. While the TBRCC Memorandum of Understanding called for the formation of the Council who would appoint from its membership, persons to sit on the Regional Advisory Committee, the process became reversed. An Interim Regional Advisory Committee (IRAC) was convened in the early stages of the process to begin work on the Strategic Plan. This was coincident with the signing of

the MOU which for various reasons, took several months to complete. By the time the Council held its first meeting in July, 1992, the IRAC had already completed the Plan and formed three consensus groups. The IRAC was composed not of persons appointed by the Council, but persons who had answered the initial call for those would be interested in participating in an region-wide data sharing project. Often the IRAC and subsequently, the RAC, was composed of interested individuals, but not necessarily possessing the requisite backgrounds for informed GIS decisions. The consensus group process additionally brought in people from organizations not represented on the Council or the RAC, but who enthusiastically supported the project and lent their efforts and talents toward consensus group goals. As part of the dynamics of the data-sharing process and ongoing Council activities, the various consensus groups as well as the RAC will continue to undergo revision to identify for participation, those who can best represent their member constituents.

The project has proved success in many aspects with recognition that *the product is the process*. It has demonstrated that consensus group and data descriptive summary protocols of the RAC as well as the services of the Central Information Unit (Council Facilitator and Chairman, Regional Advisory Committee) in collaboration with the Growth Management Data Network Coordinating Council work extremely well for projects of this type. While envisioned as a year-long effort, the dynamics of the process have taken the various groups beyond the scope of the original contract to perpetuate a process that is working well and continues to enjoy enthusiastic support of all participants. The *EPC Report* likewise came to some of the same conclusions as indicated:

"The use of Data Descriptive Summaries has proven to be particularly effective in targeting data for acquisition. No major problems have been encountered to date, and over a million dollars worth of data, already produced by public expenditure for other purposes, has already been transferred. The development of data is usually the most expensive phase and the sharing of data represents a compounding of the value of the public dollar spent while reducing the likelihood of needless duplication of data development," (*EPC Report*, p. iii).

One of the biggest obstacles remaining in the process is to identify follow-on sources of funding to continue the project. At a time of severe resource constraints upon member agencies, alternative sources of funding must be pursued from all aspects. Federal grants will continue to be a source of specific funds for specific projects. Additionally, it may be possible to obtain matching funds from the state providing the local Council is able to identify a source of funds for match.

In choosing the Tampa Bay Regional Planning Council to implement the management plan devised by the *CZM Final Report*, the Office of the Governor has specifically chosen a regional entity as the focal point for data-sharing. We believe this selection has merit for other areas of the state as well. As the state's Regional Planning Councils look towards legislation which will reconstitute the organizations, define new roles and missions, it may be prudent to give the RPCs this additional data-sharing task with appropriate funding that would guarantee a level of performance statewide that is not governed by individual grants efforts. The goal is complete statewide networking through the Florida Spatial Data Directory with eventual multi-state interaction with such groups as the Gulf of Mexico Program which is already pursuing data-sharing; and with other National Estuary Programs (such as the Galveston NEP) that have likewise been establishing management structures for data access and data sharing.

Recommendations

It is imperative that the work initiated by the *CZM Final Report* and undertaken by the contract between the Office of the Governor and the Tampa Bay-Regional Planning Council continue to provide a management structure for regional data-sharing.

- The Tampa Bay Regional Coordinating Council should continue its work with the Growth Management Data Network Coordinating Council to further identify specific areas for data-sharing, development and refinement of documentation standards, and identification of permanent funding.
- The Regional Advisory Committee should continue to serve as the working body of the TBRCC to identify for consensus group formation, those issues identified in the Strategic Plan having corporate value to the regionwide data-sharing effort.
- Consensus Groups should continue to seek ways for streamlining the process of data cataloging and documentation.
- The Growth Management Data Network Coordinating Council is encouraged to continue its efforts to effect regional data coordination through the establishment of similar regional coordinating councils for data management, through Regional Planning Councils as patterned after the *CZM Final Report* recommendations and established by the Tampa Bay RPC.
- Permanent funding to Regional Planning Councils for regional data coordination should be provided through legislative action.

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A Multi-Agency Management Structure to Facilitate the Sharing of Geographic Data

Abstract: The Growth Management Data Network Coordinating Council (Council) was created to facilitate the sharing of growth management information, most of which is spatial in nature. To this end, the Council is building a multi-agency management structure which allows the experts from different agencies to collectively develop and make recommendations to executive management in regard to data standards and policies for sharing information. Such a system requires the development of multi-agency management tools: a multi-agency project manager (the issue statement) was developed to facilitate inter-agency coordination, and a consensus group methodology was created to assist in the development of data standards. Three documentation tools were constructed: an automated card catalog (data directory) of spatial data; a quality and accuracy report; and a data dictionary. A full-time facilitator has been recognized as an essential element to the maintenance and administration of this multi-agency organization.

Introduction

The State of Florida is concerned about the effects of high growth on the State's infrastructure and environment, and has been developing ways to address the problems of managing growth. Key to these issues is the ability of management to make informed decisions which requires ready access to information, inclusive of both planning and environmental data. To specifically address these issues, the State created the Growth Management Data Network Coordinating Council (Council) in 1985, whose membership consists of the eleven State agencies that are primarily concerned with the issues of growth management.

Impediments

The acquisition and analysis of geographic information presents some new and unique problems to the information resource community:

- the expense of collecting spatial data is substantial, forcing agencies to seek existing data sources;
- the origins of phenomena about which data is being collected are often outside the jurisdictional boundaries of the information collector (physical as well as the agency mandate) requiring the acquisition data to come from outside sources;
- the measurement of spatial data requires very sophisticated technology and procedures that are only understood by a small body of experts;
- the lack of a common language for geographic information (standard definitions, standard reporting formats, quality and accuracy reporting formats, etc.) impedes the development of standards and the coordination of resources;
- upper management does not understand the issues related to geographic information and in many cases they do not even know the issues exist;
- because of the complexity of the issues and the number of organizations that need to be involved, long-term projects are difficult to sustain; and
- without a multi-agency bureaucracy that insures participation in extra-agency activities, compliance with multi-agency procedures and standards becomes subject to the behavioral "whimsy" of an individual or an organization.

Management Structure

Organizations are generally structured in a vertical fashion with the executive management defining the direction of the institution by creating policies and procedures to accomplish their goals and objectives. These guides are passed down the hierarchy to middle management and technicians who develop operational procedures and action plans to achieve specified objectives. It is at this level that measurement of past performance and the identification of new areas of concern are determined by the collection, synthesis, and analysis of information. This information is organized into an appropriate representation (executive summary, tables, maps, etc.) and periodically presented to executive management in order that the institution can make any necessary adjustments. Historically, government agencies have used data that was tabular in nature with the specific data parameters being defined by executive management (the number of cases handled, claims, errors, etc.) to measure institutional performance. As issues that governments address become more complex, the information required by management to guide their decisions has correspondingly become more complicated. Management, due to their lack of technical

expertise, has had to move from describing the specific data parameters that they need for decisions to a rather general framing of questions that they need answered - for example, is there more or less mercury in the water and is it dangerous? Deciding what information needs to be collected and how that information is acquired, measured, synthesized, and the results presented is delegated to the experts in that field.

The information being used to answer these more complex questions are typically spatial in nature and the information collected is best manipulated by geographic information systems (GIS). The collection of this raw data presents some interesting problems to the information resource manager. Only the experts, naturally, truly understand this information, and subsequently they are also the only ones able to develop appropriate policies and procedures to maintain the integrity of this data, but they are not empowered to do so. Even though these managers may develop shop standards, these standards are only ad-hoc in nature. If paths to executive management are open to formalize these ad-hoc standards, there is no structure to promote these standards outside of their organization.

If the need is great enough, individuals will take the initiative to solicit cooperation from another agency, but due to several factors, this can have a limited impact. Once an individual leaves one bureaucracy and begins interacting with individuals in another organization, the parties are no longer operating within any defined institution - they are functioning in a "bureaucratic void", with the total lack of structural support that this term implies. To accomplish their goals they are restricted to their personal resources with success being dependent upon an individual's will, until a formal agreement is acquired through such devices as a memorandum of understanding or a contract. Even when a formal agreement is acquired, they are typically limited to short-term activities. Furthermore, due to the previously mentioned reasons, agreements between more than two parties are even more difficult to acquire. Although individuals may be able to achieve some significant gains, there is nothing to perpetuate these gains when those individuals leave, the "corporate memory" of an organization, and more often than not, the initiative leaves with them. Subsequently, many inter-governmental cooperative activities in areas of high complexity are limited to small scale or short-term projects.

Another problem faced by geographic information users and managers is the inability to act on windows of opportunity. For example, in a structured meeting that we had on the soils database, the engineers from the Department of Transportation (DOT) were reviewing the USDA Soil Series Data Base with a Soil Conservation Service soil scientist. It was discovered that the information that was being collected to measure the corrosive properties of soils was restricted to corrosion on iron. The transportation engineers needed data on galvanized steel, stainless steel, and concrete. The DOT office had the laboratory facilities for measuring these properties and the parties present were able to conceptually structure a way in which the USDA soils data could be sent to the Florida DOT laboratory for analysis of these other data elements. The problem arose in finding a way to convey this concept to upper management in both institutions, and thus initiating an inter-governmental cooperative activity.

Generally, we have found that the primary impediments to sharing information is the lack of formal management structure in a multi-agency environment. To address this problem we have developed tools for communication, a consensus group methodology for developing data standards, and we are currently in the process of developing a multi-agency bureaucracy to initiate standards development and implement the standards that are derived from this process. The key to success is access by the middle managers and technicians to executive management. This has been achieved by creating an Executive Council in Florida's statutes and the signing of an inter-agency agreement regarding standards.

State of Florida Geographic Information Network

The State of Florida Geographic Information Network is a federation of independently held databases that are linked together by standards and a management structure. Its primary function is to allow the experts from the various organizations to meet in technical advisory committees (TACs), develop standards, and provide a conduit through which those recommendations can be sent to upper management.

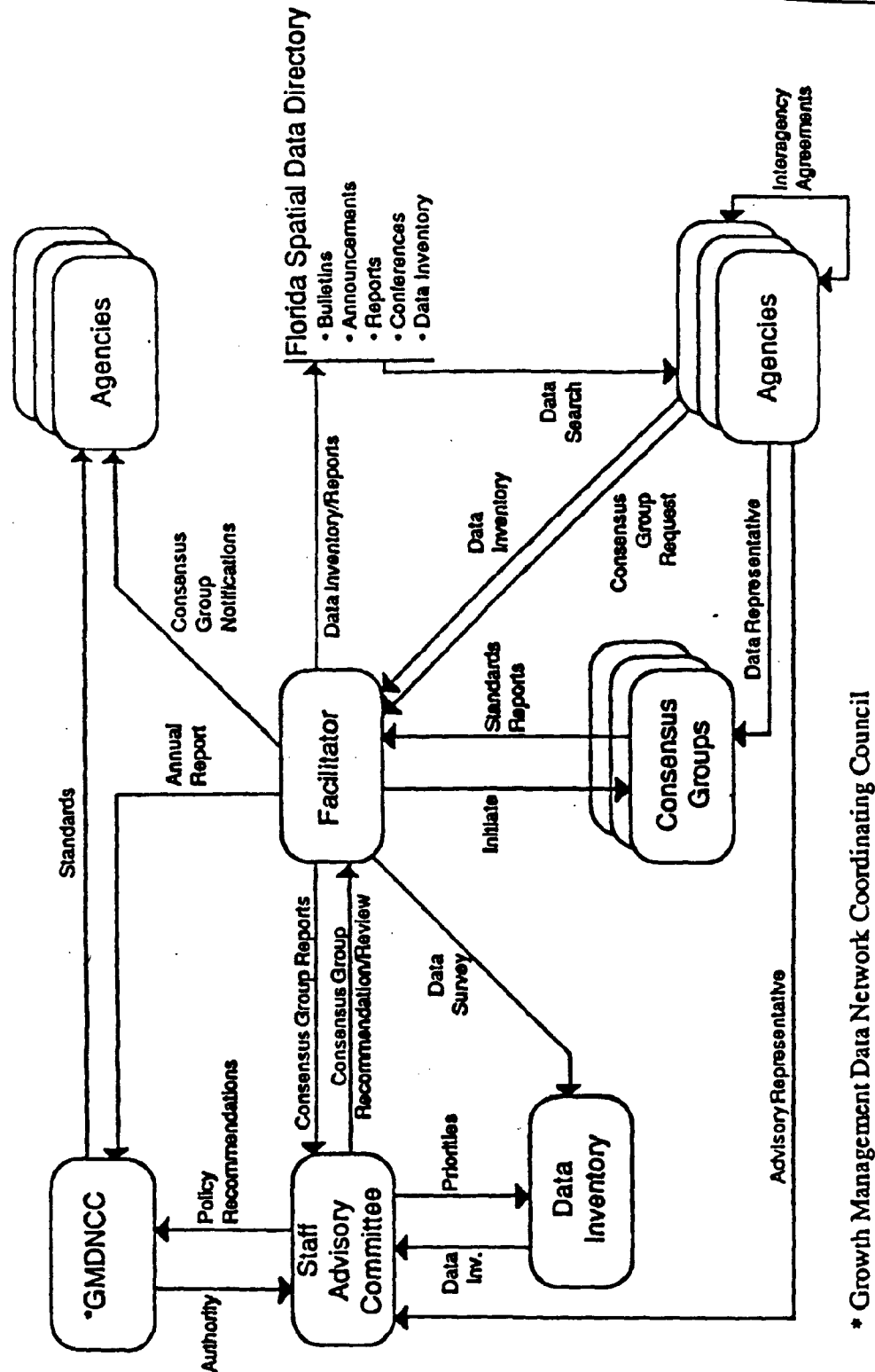
The multi-agency management structure illustrated in Figure 1, has three levels of bureaucracy: at level one, executive management makes decisions regarding policy and provides executive support to the staff advisory committee and TACs (consensus groups); at level two, a staff advisory committee identifies topics of concern, creates TACs and identifies the experts from each of the agencies that should participate on those TACs; at level three, the TACs, consisting of experts in a specific field, come together to develop policy, procedures, and standards which are then presented to the staff advisory committee for review. These recommendations are then presented to the Council and, if adopted, they can be promulgated to other state agencies.

There are six fundamental tools that are used in this structure:

- a newsletter to provide information about on-going activities;
- an issue statement that documents the various activities and provides a structured methodology and project manager for TACs which can develop recommendations for standards, procedures, and policies;
- a catalog of geographic data (data directory);
- documentation of the "goodness" of the data (quality and accuracy report);
- a detailed description of the data (data dictionary); and
- formal transfer protocols using the United States Geological Survey's (USGS) Spatial Data Transfer Standards.

These methodologies and tools will be described in their appropriate sections.

State of Florida Geographic Information Network



* Growth Management Data Network Coordinating Council

Figure 1

Management Support and Structured Methodologies

The institutionalization of a management structure requires management support services and structured methodologies to insure consistency and coordination. The Council has established the following: a facilitator to provide administrative and management support services; a multi-agency project manager (issue statement) that coordinates and tracks activities; and TACs (subcommittees and consensus groups) which provide an inter-agency micro-bureaucracy.

Facilitator:

A Facilitator is essential to the Council, staff advisory committee and the TACs, providing training, support services, and management guidance. This is particularly important to the TACs where a significant amount of work is required of a membership that is essentially composed of volunteers. The facilitator:

- promotes horizontal activity by providing a single point of contact, and becomes a broker of resources by developing a "corporate memory" for the multi-agency body;
- acts as a inter-agency manager by coordinating activities, insuring the use of structured methodologies, and aiding in the development of strategic plans for the Council (enforcing its rules);
- provides an inter-agency staffing by aiding the various TACs with their administrative duties, documentation of meetings, presentations, and the development of issue statements. Each TAC, which is actually developing its own micro-bureaucracy, utilizes the facilitator to help establish the structure, identify the goals, objectives, and tasks in order that they may spend their time working on the objectives as opposed to the administrative duties of the TAC; and
- provides a management function to the Council by tracking the progress of each TAC.

Issue Statements:

The issue statement was developed as a project manager for the multi-agency tasks force. These amorphous bodies, which have an inherently weak leadership and no authoritative power, face a number of problems that inhibit their ability to become an effective operational organization. Turnover in state government is approximately two years, causing a constant attrition to these groups; "meetings" tend to produce a lot of good discussion, but little planned action; members of multi-agency tasks force are essentially volunteers only able to provide the minimum amount of time outside of the meetings of the tasks force; and the collective memory of such organizations is poor, at best, making long-term projects difficult. To overcome these problems, we have developed a multi-agency project manager in the form of an issue statement (See appendix 2 - the issue statement is

modified from the EPA's Gulf of Mexico Program Action Plan concept) that is designed to alleviate these problems. This document:

- provides a charter and justification for participation;
- establishes an action plan with goals, objectives, tasks, and timelines;
- provides documentation of actions (a corporate memory of activities) allowing issues to be placed on hold and when resurrected the work can continue where it was left off, even if the membership has completely changed; and
- acts as a project manager for the facilitator and co-chairs.

Technical Advisory Committees:

Technical Advisory Committees are inclusive of both Subcommittees and Consensus Groups and although both groups use issue statements for their organizational structure, they are conceptually two different types of activities: *Subcommittees* develop policies and procedures to standardize operations, and *Consensus Groups* develop standard data definitions.

Subcommittees

Subcommittees are formed to address issues that will result in the development of generic standards (see Standards section) that are related to the development of broad based policies and procedures. For example, the Florida's Public Records Law requires that state agencies make information that is collected with public funds available to the public for inspection. But the law was created before the existence of computers, and the last update to Florida's Public Records Law occurred before the development of geographic information systems. There is a great deal of confusion in the GIS community over how the information resource community will be impacted by the Public Records Law, and as a result they are somewhat reluctant to advertise the existence of their data. A Public Records Law Subcommittee was formed to address this issue and will eventually make recommendations to the Council on how to resolve these problems on a State-wide basis. Prior to the establishment of this subcommittee, the only recourse for information resource managers was to consult with their legal staff to resolve a specific issue. There was no formal avenue to address this issue on a statewide basis.

Consensus Groups

A Consensus Group is a structured methodology by which standards on data can be developed (data specific standards). Conceptually, the following will take place: a dataset will be identified as having "corporate value"; that is, value outside of its

use to the data developer(s). A consensus group will be formed that includes the data developer(s), potential data users, and a technical person. Using the quality and accuracy report and the data dictionary, the dataset will be reviewed. Suggestions will be solicited and if possible (either by good will of the data developer or incentives by the user) enhancements can be made to the data, thus increasing the utility or "corporate value" of the data. Consensus groups accomplish two things: they act as a peer review process for the documentation of the data, and they provide an opportunity for improving the way information is being collected for the larger community. This process allows the data to be scrutinized, providing the user with the opportunity to request changes to the data base. For example, let us suppose that two adjoining counties are collecting information on multi-family dwellings. If County A is including duplexes in their definition of apartments, and County B is identifying duplexes as a separate entity, then it will be impossible to validly conduct bi-county studies on multi-family dwellings. By holding a Consensus Group before the information is collected such problems can be avoided.

Standards

The solution most frequently presented to facilitate the coordination of data collection activities and the sharing of geographic information is the development of standards. When analyzed, one is confronted with a myriad of problems such as: identifying which elements to standardize; putting together a structure to develop standards; defining what a standard is; and standardizing the standards procedure.

Standards Development:

To facilitate the development of standards, we are incorporating a Futures Planning Technique that prioritizes policies based on the projected impact of those policies on the State. We are then linking these policies to issues and data sets to be addressed. For the standards development activities, we have recognized three areas that need to be dealt with: standard formats, generic standards, and data-specific standards.

Futures Techniques

A strategic planning methodology, Futures Technique, is being used to prioritize and focus the available resources on the most important issues. To facilitate the sharing of information, one must address issues as fundamental as which datum to use, as specific as the definition of data sets, as broad as the development of statewide policies. It is too easy to get lost in the details and fail to create a focus, subsequently losing the confidence of an organization. Through the use of this strategic planning technique, we are attempting to identify and prioritize issues that are the most important to all of the organizations. This will link together the policies of the different agencies with the activities of the Council.

Standard Formats

Standard formats are the way in which standards are reported. Currently there are several organizations, in addition to individual agencies, working on "standards" that will affect Florida: the State of Florida has the Growth Management Data Network Coordinating Council; the Tampa Bay Regional Coordinating Council; and the State of Florida Base Mapping Advisory Committee. Organizations developing standards outside of Florida and affecting the State are: the Environmental Protection Agency's Gulf of Mexico Program; the Federal Geographic Data Committee; and three neighboring states. If geographic standards are to be universal, it is imperative that these organizations communicate and coordinate their operations. To accomplish this there must be a set of common communication formats, just as there exists within any agency. This will create a functional basis for a multi-agency/governmental bureaucracy by linking the organizations together by the creation of a common language and procedures, or standard formats. This can succeed only if these formats are useful at all levels of government, have internal value to an agency and external value to the multi-agency body, and are formally adopted by all parties. The management and documentation tools that we have developed all have the features of a standard format designed into them.

Generic Standards

Generic standards apply across all agencies and may be implemented through policies, the rule-making process, and legislation. For example, standard procedures for digitization defines a methodology that is focused on providing a consistency in line structure across agencies.

Data Specific Standards

Data specific standards focus on one specific data set. The purpose is to define the way that data is collected in such a way that it maximizes its utility to all members of the corporation, not just the data developer. Data specific standards require the participation of the data developer and the user community to define the data in such a way that all parties know and understand what the data is. In order to maximize its use, the users need to have an opportunity to define how it is collected.

Transfer Protocols:

The Federal Spatial Data Transfer Standard (SDTS) (1), which is being developed by the USGS, is a technological tool that will allow the transfer of spatial data between different platforms. We adopted this format, subject to approval by the National Institute of Standards and Technology, in 1989. At the time, we felt that it was necessary to move forward despite the fact that the approval process was expected to take one or two more years. Two elements of the SDTS were identified that we could adopt immediately -- the data dictionary and the quality and accuracy report. These two tools, in conjunction with the card catalog, have become the fundamental elements of our information network.

Documentation Tools:

One of the primary goals of the Council is the sharing and preservation of data. The user must know what the data is that they are receiving. This is achieved by insuring that the data is well-documented. To accomplish these ends, a set of documentation tools have been developed: a card catalog of geographic information; a quality and accuracy report; and a data dictionary. These tools provide three levels of information: the card catalog locates the information; the quality and accuracy report describes the "goodness" of the data; and the data dictionary describes the individual data elements. These formats describe the data at the most basic level and form the basis on which standards are developed.

The Importance of Structured Documentation Tools

As previously mentioned, the need for standard formats for communicating ideas is essential for coordination between organizations and governments. These standard formats include transfer protocols, operational procedures, and documentation. One of the difficulties that we have found in implementing our system is adherence to established guidelines. The documents that need to be completed are by their very nature complex, and although they have significant value to the participants within their own organizations, there is a tendency to modify the formats. This defeats one of the major objectives of documents: the creation of a standard format in which information can be compared and standards developed. The use of structured documentation tools will solve this problem by providing the user with a software package that makes the process easier, and at the same time dictates the structure. We are in the process of developing such a tool for the card catalog, quality and accuracy report, and the data dictionary.

Data Directory (Card Catalog of Spatial Data)

The creation of a card catalog of spatial data is essential to the development of a multi-agency bureaucracy. We have developed a system accessible by phone modem that, if implemented within a multi-agency management structure, will provide a dynamic directory of geographic data in the State. We recognize that there are already several similar systems in existence, but we feel that they do not have all of the necessary information. Furthermore, without a multi-governmental management structure to keep such a directory updated, it will become useless in a very short period of time.

The institutionalization of such a system distinguishes it from the periodic spatial data surveys being conducted. Such a system should be able to provide the user with the necessary information to identify data sets of interest, locate the information, and provide access to a quality and accuracy report which will describe the utility of the data. This system will not be useful unless the information that is included in the directory is updated on a regular schedule. The development of a management structure to insure the validity of this information is essential. Within

each organization, a single point of contact will be assigned to keep the directory updated. Although this task may seem onerous, we have found that the need for organizations to track this information within their own institutions is just as great as the need to locate the information in different agencies. We are developing a software package that provides each agency with a tool to track their own data resources, and because all agencies will be using the same software, this information can be pyramided to a central repository. The grand scheme is to promote this on a national level and build a national directory of spatial data.

Quality and Accuracy Report

The Quality and Accuracy report was originally conceived as a part of the Standards Development Subcommittee of the SDTS (2). They recognized that requiring an organization to meet an external standard was impossible, so they designed a self-reporting format in which the provider describes a set of information about the data -- "truth in labelling," as proposed by Nick Chrisman. We have added additional structure to these reports to overcome problems we have found in self-reporting, such as the natural tendency to only describe the more positive aspects of the data rather than the negative. To resolve this, we took the elements that the Standards Development Committee identified and structured the report in an outline or template format. This produces a document that gives a complete picture of the quality and accuracy of the data by requiring the declaration of not only what information is known, but also what is unknown and what is not applicable. This standard reporting format allows the recipient to focus on those aspects of the report that are most important to them, and to easily evaluate the data's suitability and use for the recipients use (See Appendix 1).

Data Dictionary

The data dictionary provides two important elements: documentation of the data, and a basis for developing quality and control standards. The data dictionary defines each of the data elements (attributes) by describing how it is measured, its structure (if automated), and the codes used. When a database is documented, the dictionary is used as an agenda to review the data. Modifications, clarification of the document, additions, and standard levels of acceptance can be agreed to through the review of this document. The data dictionary we have developed and tested is included in Appendix 2.

Summary

After trying to facilitate the sharing of geographic information for three years, we have concluded that it is a "bureaucratic vacuum" which is allowing personal and organization behavioral problems to arise and impede the sharing of geographic information. To resolve this problem, we are developing a multi-agency bureaucracy with standard forms, procedures, lines of communication, and access to executive management to overcome these impediments and promote the sharing of geographic information.

References

- (1) "The Proposed Standard for Digital Cartographic Data", The American Cartographer, American Congress on Surveying and Mapping, Vol. 15, No. 1, January 1988.
- (2) Chrisman, N. "Testing the Interim Proposed Standard for Digital Cartographic Data Quality", Report of the testing phase, Cycle 4, National Committee for Digital Cartographic Data Standards, Working Group II on Data Set Quality.

Appendix 1

Quality and Accuracy Report

The purpose of the template for the Quality and Accuracy Report is to provide as through a documentation of the data as possible, allowing a potential user to read the report and determine the utility of the data for their needs. The intent is to follow the "truth-in-labelling" practices proposed by the workgroup that developed the Spatial Data Transfer Standards proposed by the U.S. Geological Survey. The following quotes come for An Interim Proposed Standard for Digital Cartographic Data Quality; Supporting Documentation by N. Chrisman.

We find "quality" to be a wide-ranging concern which can cover any issue affecting the use of cartographic data. The potential uses of digital cartographic data are so diverse that a fixed set of numerical thresholds could not adjust to the potential uses. In more circumscribed application areas (for example, a multipurpose cadastre or a forest inventory), a set of thresholds might be fruitful. Because these standards must serve the whole profession, we foresee a truth-in-labelling standard instead. The idea is to communicate actual numerical properties of the data in a way that potential users can make their own informed decisions of fitness.

The truth-in-labelling concept may seem less rigorous in that it blesses the status quo. Any imprecise, inaccurate data base could meet the standard in the formal sense by proclaiming those imprecisions and inaccuracies. These standards place a substantial responsibility on the user to evaluate the quality report to ensure fitness for the particular application.

It is with this thought in mind that the templates have been created. This report format is better suited for user evaluation of the data, because it formalizes the structure but still allows the basis to be textual in content.

A quality and accuracy report has also been developed for Raster Data. The development of a supplementary document, users manual, and a structured documentation tool (automation of the templates) is currently under development.

QUALITY AND ACCURACY REPORT:

Template - Vector Data

Data Coverage Name: Enter a name for this particular coverage, i.e., LULC for Land Use Land Cover.

Data Coverage Description: Description of this coverage, its particulars, parameters, etc.

Organization: Name of organization that prepared/conducted this report.

Prepared By: Name of person who prepared report.

Section: Section of organization that prepared this report.

Department: Department that prepared this report.

Updated: Enter the update period for this report.

A. Lineage

1. Description of source material(s)

a. **Lineage Name:** Brief, descriptive name of lineage, i.e., USGS 7.5 minute quads.

b. **Scale:** Specify ratio, i.e., 1:24,000.

c. **Datum:** Identify datum.

d. **Map Projection:** i.e., polyconic, UTM, etc..

e. **Media of Source:** i.e., color mylar, paper, etc.

f. **Condition of Media:** i.e., Excellent, Fair or Poor.

g. **Creator organization/individual:** Name, address and phone number.

h. **Date of Source Material:**

1. **Time interval covered:** i.e., Dates of data sampling, i.e., 1954 - 1989.

2. **Update Schedule:** Updated schedule, if known.

2. Derivation methods for data

a. Methods of derivation

1. **Preautomation Compilation:** Compilation information, i.e. Photointerpreted from 1:24000 scale maps

2. **Digitizing/Scanning/Transformations:**

3. Equipment

a. **Model:** Model information, i.e., ANA Tech Eagle 4080 large format scanner.

b. **Resolution:** i.e., 400 dpi Altek Table, accuracy of .001 inches.

c. **Tolerance of Digitizer:** i.e., Tolerance of Altek tables is .003 inches.

b. Date of Automation

1. Initial Date: i.e., Between 9/80 and 11/90.

2. Update Schedule: i.e., Every five years.

c. Control Points: Known information on control points used.

d. Explanation of procedures used to digitize/scan/transform the data

1. Name of transformation methodology: Any appropriate methodology would be entered here.

2. Description of Algorithm: Description of any algorithm used would be entered here.

3. Mathematics used in the transformation: Relevant mathematics would be entered here.

4. Set of Sample Computations: If there are any computations, enter a sample here.

e. Software system and version used: i.e., DOS 5.1, OS/2, etc.

B. Positional Accuracy

1. Linework Completeness Check

a. Date:

b. Value: Identify value.

c. Method Used to Derive Value: Methodology.

2. Linework Positional Accuracy Check

a. Date:

b. Value:

c. Method Used to Derive Value: Explanation of how above value was derived.

3. Absolute Measure of error reference

a. Value: Value of error reference.

b. Method Used to Derive Value: Select one or more of the following options.

1. Deductive estimate

a. Date of tests:

b. Results: Results of above test.

2. Internal Evidence (geodesy)

a. Date of tests:

b. Results: Enter results of above test.

3. Comparison to Source

4. Independent source of higher accuracy

a. Date of tests:

b. Results: Results of above test.

C. Attribute Accuracy

1. Linework Completeness Check

a. Date:

b. Value:

c. Method Used to Derive Value: Method used to derive above value.

2. Linework Attribute Accuracy Check

a. Date:

b. Value:

c. Method Used to Derive Value: Method used to derive above value.

3. Absolute Measure of error reference

a. Value: Value of error reference.

b. Method Used to Derive Value: Method used to derive value of error reference.

1. Deductive estimate

a. Date of tests: Date(s).

b. Results: Results of above test.

2. Internal Evidence (geodesy)

a. Date of Tests: Date(s).

b. Results: Results of above test.

3. Comparison to Source

4. Independent source of higher accuracy

a. Date of tests: Date.

b. Results: Results of above test.

D. Logical Consistency

1. Cartographic Tests

a. Test Performed: Cartographic tests performed.

b. Date: Date cartographic test was performed.

c. Result: Results of cartographic test here.

d. Do lines intersect only where intended? Answer with Yes or No.

e. Were duplicate lines eliminated? Answer with Yes or No.

f. Are all polygons closed? Answer with Yes or No.

g. Have dangles been eliminated? Answer with Yes or No.

h. Have silvers been eliminated? Answer with Yes or No.

1. Do features have unique identifiers? Answer with Yes or No.

2. Topological Tests

a. Test Performed: Topological test performed.

b. Date:

c. Software Used: Name and version of software used in topological test.

d. Results

1. Test for polygon coverage

a. How many polygons are represented on the digital map product? Number.

b. Has a polygon closure been verified? Yes or No.

c. Are polygon-IDs assigned to each polygon on the digital map? Yes or No.

1. Do polygons have more than one polygon-Id? Yes or No.

2. Are the Polygon-Ids unique? Yes or No.

2. Test for line coverage

a. How many lines are represented on the digital map product? Number.

b. Do the line segments have unique line segment values? Yes or No.

c. Is the digital map topologically clean? Yes or No.

3. Test for point coverage

a. How many points are represented on the digital map product? Number.

b. Are the Point-Ids unique? Yes or No.

E. Completeness of Source Materials

1. Selection Criteria: Identify how the objects were identified.

2. Definitions Used: Definitions used for selection criteria.

3. Other relevant mapping rules: i.e., minimum mapping units, etc.

4. Deviation from standard definitions and interpretations:

5. Description of relationship between the objects

6. Tests for taxonomic completeness

a. Procedures: Procedures of the test used here.

b. Results: Test results.

Appendix 2

Data Dictionary

The proposed Data Dictionary is a data documentation tool, but it also fulfills the requirements of the Spatial Data Transfer Standards and it is essential for the development of data standards. It is not designed to be a systems data dictionary (aliases are not included) but the information should be fundamental to all data dictionaries.

Data Dictionary Template Outline

A. Entity Template

1. Label
2. Entity Authority
3. Definition
4. Point/Line/Polygon
5. Quantity of Data

B. Attribute Template

1. Label
2. Attribute Authority
3. Definition
 - a. description
 - b. measurement/determination
4. Domain Value
 - a. Value Format
 1. Domain
 - a. Character Type
 - b. Allowable Values
 1. Length
 2. Number of Significant Digits
 3. Units of Measure
 - b. Categorical
 1. Value
 2. Meaning These are mutually exclusive.
 - c. Continuous
 1. Range of Values
 - a. Minimum
 1. Value
 2. Inclusive/Exclusive
 - b. Maximum
 1. Value
 2. Inclusive/Exclusive
 2. Typical Value
 5. Other Editing Information

A. Entity Template

An entity is an object in space, for example a bridge, that is represented as a point, line, or polygon on a map. The object is described by a set of attributes such as composition, length, number of lanes, etc.

1. Label

The reference name for the entity.

2. Entity Authority

The source of the definition. For example, the entity authority could be by the author, a professional organization, a dictionary, etc.

3. Definition

A definition of an object potentially consists of two components, a description of the object like one would find in a dictionary and the procedures that were used to measure it.

a. Description

A general description of the object, ie. a bridge is a foot path or road way that spans a water course or crevice.

b. Measurement/Determination

This describes how the object was measured. This may not be pertinent to all entities and is left to the discretion of the documenter. An example of an entity description that would require completion of this section would be the sources of an abstraction, ie. if group of polygons describing components of an estuary were collapsed into a larger polygon at a higher level of classification, it would be important to know what the subclasses consisted of.

4. Point, Line, Polygon

This is for information purposes to describe how the object is represented in space.

Point: A zero-dimensional object that specifies geometric location. One coordinated pair or triplet specifies the location.

Line: A direct line between two points. It should be inclusive of the term string which is: an ordered sequence of points representing a connected nonbranching

sequence of line segments.

Polygon: A set of non-intersecting lines, with closure, that represents a two dimensional object in space.

5. Quantity of Data

A description of how much data, in terms of computer storage, this object occupies. The units of measure must be provided.

B. Attribute Template

An attribute is a defined characteristic of an entity, for example, composition is a possible attribute for a bridge.

1. Label

The reference name of the attribute.

2. Attribute Authority

The source of the definition. For example, the entity authority could be by the author, a professional organization, a dictionary, etc. A complete reference should be provided where possible

3. Definition

A definition of an attribute potentially consists of two components, a description of the object like one would find in a dictionary and the procedures that were used to measure it.

a. Description

A general description of the attribute, ie. one of the attributes of a bridge would be its composition, that is what it is made of.

b. Measurement/Determination

This describes how the attribute was measured, but it may not be pertinent to all entities and is left to the discretion of the documenter. An example of an attribute description that would be the laboratory procedures for measuring mercury. This could be quite extensive and provisions have been made to allow an unlimited amount of space for documentation, this information may be imported from existing electronic documents. If there are aliases and the documenter feels that they are important, they should be included in this section.

4. Domain value

Describes the format that the attribute value can take. The set in which a variable is expressed, i.e., alpha, alphanumeric, graphic character, integer, etc.

a. Character type

There are six major specifications of type:

A data type indicates the manner in which the field or subfield will be encoded. This is relevant to the data transfer and not to a data dictionary.

- A** Graphics characters, alphanumeric characters, or alphabetic characters
- I** Implicit-point (integer)
- R** Explicit-point unscaled (real)
- S** Explicit-point scaled (real with exponent)
- B** Bitfield data (unsigned binary, per agreement)
- C** Character mode bitfield (binary in zero and one characters)

b. Allowable values (domain enumeration)

1. Length

This identifies the number of characters in the variable field.

2. Number of significant digits

The number of decimal places that are meaningful. For example, in dealing with dollars and cents there are two significant digits. If you have a value such as \$1.53 multiplied by .18, you will have an answer of .1754, but the answer will only be valid (and sensible) to the second decimal. Thus the correct answer, rounding to the nearest 100th, is .18.

3. Units of measure

Identifies what measurement was used for a value, i.e. dollars, francs, feet, inches, meters, pounds, kilograms, etc.

c. Categorical

Data elements which only take up certain values, i.e., a department number which can take on the values 06, 20 and 33, but no other values.

1. Value

The actual categories, such as Fl, Ga, Al.

2. Meaning

Definition of the values i.e., Fl = Florida, Ga = Georgia, Al = Alabama.

d. Continuous

Data elements, which for all practical purposes, can take any value within a range, i.e., a dollar amount from zero to \$999,999,999.99 to the nearest cent.

1. Range of values

The range of values is the minimum and maximum value.

a. Minimum

1. value

Minimum numerical value.

2. inclusive/exclusive

This defines whether or not the minimum numerical value included in the range or is it excluded in the range. An example of an excluded minimum would be a range of numbers from 5.000 to 10.000 where the least value would be 5.001 but never 5.000. If the number was inclusive the minimum value would be 5.000.

b. Maximum

1. value

Maximum numerical value.

2. inclusive/exclusive

Conceptually the same as minimum inclusive/exclusive, but the maximum value.

2. Typical value

Give some indication as to what a typical value would be. This may be described as a mean, median or mode, if appropriate. It is not necessary to calculate these values. The purpose is to provide a "general understanding of what is to be expected." Textual description is also appropriate with support for the derived number.

5. Other editing information

This would include programmatic edits from the source of data entry. Examples of edits would be upper or lower case, values = A through G, values less than 0, etc.

If editing features such as date fields, dollar marks, etc. are included with the data, this information should be included here.

Sample Data Dictionary Template

Example of an Entity With Categories:

A. Entity and its associated attributes

- | | |
|-----------------------------|---|
| 1. Label | Standard Soils Data Set |
| 2. Entity Authority | Soil Conservation Service |
| 3. Definition of the Entity | All attributes associated with each soil. |
| 4. Point\Line\Polygon | Polygon |
| 5. Quantity of Data | Unknown |

B. Attribute Template

- | | |
|------------------------|---|
| 1. Label | ANFLOOD |
| 2. Attribute authority | Soil Conservation Service |
| 3. Definition | |
| a. Description | Annual Flooding Frequency. Descriptive term used to describe the probability that flooding will occur during any year. |
| b. Measurement | Estimate based on the synthesis of evidence including, but not limited to: seasonal climatic data, river and coastal hydrological data, and field observations. |

4. Domain Value

a. Value Format

1. Domain

- | | |
|--|---------------|
| a. Character type | A (character) |
| b. Allowable values (domain enumeration) | |
| 1. Length | 5 |
| 2. Number of significant digits | N/A |
| 3. Units of Measure | N/A |

b.1 Categorical

- | | |
|------------|--|
| 1. Value | None |
| 2. Meaning | No reasonable possibility of flooding (near 0 percent chance of flooding in any year). |

b.2 Categorical

- | | |
|------------|---|
| 1. Value | Rare |
| 2. Meaning | Flooding unlikely but possible under unusual weather conditions (from near 0 to 5 percent chance of flooding in any year, or near 0 to 5 times in 100 years). |

b.3 Categorical

- | | |
|------------|---|
| 1. Value | Occas |
| 2. Meaning | Occasional. Flooding is expected infrequently under usual weather conditions. (5 to 50 percent chance of flooding in any year, or 5 to 50 times in 100 years.). |

b.4 Categorical

- | | |
|------------|---|
| 1. Value | Freq |
| 2. Meaning | Frequent. Flooding is likely to occur often under usual weather conditions (more than a 50 percent chance of flooding in any year, or more than 50 times in 100 years). |

b.5 Categorical

- | | |
|------------|---|
| 1. Value | Comm |
| 2. Meaning | Common. Occasional and frequent classes can be grouped for certain purposes and called COMMON flooding. |

c. Continuous

1. Range of values

a. Minimum

- | | |
|------------------------|-----|
| 1. value | N/A |
| 2. inclusive/exclusive | N/A |

b. Maximum

- | | |
|------------------------|-----|
| 1. value | N/A |
| 2. inclusive/exclusive | N/A |

- | | |
|------------------|-----|
| 2. Typical value | N/A |
|------------------|-----|

5. Other editing information

The category COMMON does not occur as often. It is found primarily in the older soil surveys.

Data Dictionary Glossary

Definitions and Use of Terms

aliases:

Other words for the same variable. These normally are not relevant to the transfer of data but if so, they should be included in the definition.

attribute:

a defined characteristic of an entity, for example, composition is a possible attribute for a bridge.

attribute authority:

The organization and/or document through which a meaning is assigned to the attribute label.

attribute value:

A specific quality or quantity assigned to an attribute (where entity is "bridge" and attribute is "composition," an attribute value might be "steel").

authority:

The organization and/or document through which a meaning is assigned to the entity label.

bitfield (unsigned binary, per agreement):

A sequence of on or off states to be represented by bitfield data--unsigned.

character mode bitfield:

A sequence of on or off states to be represented by bitfield data using the binary characters "0" and "1".

categorical values:

Data elements which only take up certain values, i.e., a department number which can take on the values 06, 20 and 33, but no other values.

continuous:

Data elements, which for all practical purposes, can take any value within a range, i.e., a dollar amount from zero to \$999,999,999.99 to the nearest cent.

domain:

The set in which a variable is expressed, i.e., alpha, alphanumeric, graphic character, integer, etc.

entity:

A real world phenomenon that is not subdivided into phenomena of the same kind (i.e., a bridge).

entity authority:

The identification of the organization and/or document through which meaning is assigned to an entity label.

exclusive:

The value is not included (if a lower limit of a range is 2.0, and it is exclusive, 2.0 is not a member of the range).

inclusive:

The value is included (if a lower limit of a range is 2.0, and it is inclusive, 2.0 is a member of the range and the smallest value of that range).

integer:

A positive, negative, or unsigned whole number.

label:

A descriptive or identifying word.

length:

The maximum number of digits a number can have. This is field-specific information.

number of decimal places:

Number of places allowed to the right of the decimal -- statement about the accuracy (significant digits) of the number of decimal places should be included.

number of significant digits:

The number of decimal places that are meaningful. For example, in dealing with dollars and cents there are two significant digits. If you have a value such as \$1.53 multiplied by .18, you will have an answer of .1754, but the answer will only be valid (and sensible) to the second decimal. Thus the correct answer, rounding to the nearest 100th, is .18.

real:

A positive or negative number with a fraction. A rational or irrational number.

template:

An outline to be followed when recording information.

type:

A data type indicates the manner in which the field or subfield will be encoded. This is relevant to the data transfer and not to a data dictionary.

- A Graphics characters, alphanumeric characters, or alphabetic characters
- I Implicit-point (integer)
- R Explicit-point unscaled (real)
- S Explicit-point scaled (real with exponent)
- B Bitfield data (unsigned binary, per agreement)
- C Character mode bitfield (binary in zero and one characters)

units of measure:

Identifies what measurement was used for a value, i.e. dollars, francs, feet, inches, meters, pounds, kilograms, etc.

value:

The number or code stored.

APPENDIX 2

Tampa Bay Regional Coordinating Council

MEMORANDUM OF UNDERSTANDING

Statement of Purpose

This Agreement sets forth the terms under which the Tampa Bay Regional Coordinating Council for Growth Management Data shall be formed and how its members will implement the purpose of its creation. The terms in this Agreement serve to facilitate coordination for the development of more effective and efficient means to make information available for decisions. The parties to this Agreement have determined that geographic or spatial data is essential for effective interagency and intergovernmental management. In consideration of the mutual undertakings of the parties hereto, the parties to this Agreement shall:

- Promote the sharing of data related to growth management;
- Promote consistency of data elements;
- Adopt common data elements and formats for interagency transmission of data where feasible; and
- Avoid the duplication of effort associated with the collection of data.

Definitions

As used in this Agreement, the term:

- **Central Information Unit** refers to a dedicated staff position that will act as a facilitator for the activities of the Regional Coordinating Council.
- **Consensus Group** refers to a group of experts who create standards on designated data. Membership is dependent upon the topic under consideration.
- **Consensus Group Methodology** refers to a methodology developed to increase the sharing of information that has "corporate value," that is, utility by more than the original developer.

- **Data Element** means a basic unit of information having a unique meaning and which has subcategories (data items) of distinct units of value.
- **Data Format** means a description of how a data element is represented in terms of computer storage.
- **Florida Digital Spatial Database System** refers to a system of independently operated and maintained digital spatial databases that are of multiagency value and linked or connected by interagency cooperation and common data needs, standards, and the use of a standard data transfer methodology.
- **Florida Spatial Data Directory** refers to an automated directory, accessible by phone line, of information about geographic or spatial data for the State of Florida.
- **Geographic/Spatial Data** means entities that can be located by coordinates representing a specific location on the earth.
- **Growth Management Data** means the land use, natural resources and demographic information necessary to make appropriate and informed decisions for guiding our future growth.
- **Growth Management Data Network Coordinating Council** refers to the council created by section 282.403, Florida Statutes (1985), to coordinate the sharing of data required to respond to growth management issues in Florida.
- **Regional Advisory Committee** refers to the staff members from the member agencies and other representatives as recommended.
- **Regional Coordinating Council for Growth Management Data** refers to the entire regional organization which consists of the Regional Council, the Regional Advisory Committee, the Central Information Unit and the Consensus Groups.
- **Regional Council** refers to the body of chief executives (or their designee) of the member agencies.
- **Shall** means a requirement, attribute, or condition which cannot be waived and from which a material deviation may not be made.

- **Should** means a desirable requirement, attribute or condition, but one which is permissive in nature and may be waived.

Terms of the Agreement

Parties to this Agreement should take action within the purview of their statutory authority and resources to comply with the standards and conditions specified in the following terms:

Formation of a Regional Coordinating Council for Growth Management Data

Agencies shall work together to create a system of independently operated and maintained spatial databases that are linked together by a management structure and data standards. The management structure is defined by this document and the standards are products of the Consensus Group Methodology.

1. Creation of a Regional Coordinating Council for Growth Management Data

Membership of the Regional Council shall consist of the following or their designee: the County Administrators of Hillsborough, Manatee, Pasco and Pinellas Counties; the Executive Director of the Environmental Protection Commission of Hillsborough County, the Pinellas County Property Appraiser; the Executive Director of the Southwest Florida Water Management District; the Director of District Management of the Department of Environmental Regulation; the Regional Director of the Department of Transportation; the District Administrator of the Department of Health and Rehabilitative Services; and the Executive Director of the Tampa Bay Regional Planning Council. The Executive Director of the Tampa Bay Regional Planning Council shall serve as initial chairman to the Council. No later than the third Council meeting, elections will be held for the chairman of the Council.

2. The Regional Council shall:

- (a) Ensure a staff representative for each Council member is appointed to the Regional Advisory Committee that will represent the Council for the interaction with the Central Information Unit. The Regional Advisory Committee shall make recommendations to the Council on a simple majority vote. Those decisions passed on to the Council should be concerned with interagency policy decisions;

- (b) Define the staffing of the Central Information Unit that will coordinate activities within the region;
 - (c) Make such policy decisions as necessary to further information sharing in the region; and
 - (d) Shall review and approve Consensus Group reports.
3. The Regional Advisory Committee shall:
- (a) Have additional representation from the Florida Marine Research Institute, the West Coast Regional Water Supply Authority and the University of South Florida;
 - (b) Make recommendations to the Regional Council on additional appointments to the Regional Advisory Committee;
 - (c) Have the authority to initiate Consensus Groups and request participation from all concerned parties; and
 - (d) Review and approve Consensus Group recommendations.
4. The Central Information Unit shall:
- (a) Act as a facilitator to coordinate activities between each of the agencies;
 - (b) Recommend the establishment of Consensus Groups to the Regional Advisory Committee;
 - (c) Act as liaison between the Regional Coordinating Council for Growth Management Data and the Growth Management Data Network Coordinating Council;
 - (d) Be responsible for updating and maintaining the regional entries on the Florida Spatial Data Directory; and
 - (e) Provide an annual report to the Regional Coordinating Council for Growth Management Data and the Growth Management Data Network Coordinating Council.


5. The Consensus Groups shall:

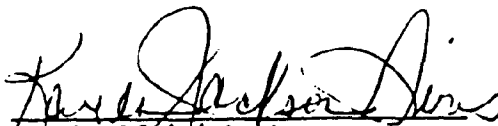
- (a) Promote consistency of data elements by establishing standard data definitions and formats;
- (b) Recommend criteria, policies and procedures for the sharing of information;
- (c) Assure utilization and coordination of data from existing sources by referencing the Florida Spatial Data Directory;
- (d) Make announcements of data acquisition projects and products on the Florida Spatial Data Directory;
- (e) Submit Consensus Group Reports through the Central Information Unit to the Regional Advisory Committee for approval. Consensus Group reports will be submitted to the Regional Council for their review and approval. Approved copies will then be forwarded to the Growth Management Data Network Coordinating Council for review and upon acceptance will be included as part of the Florida Digital Spatial Database System. The information submitted will be included on the Florida Spatial Data Directory; and
- (f) Follow the Consensus Group Methodology guidelines.


This Agreement shall become effective on January 15, 1992, and may be amended to include additional parties and terms. The terms of the Agreement may be changed at any time by written modification agreed upon by all parties.


Should disagreement over the terms of the Agreement arise, all parties shall attempt to resolve the dispute. Any party may terminate from the Agreement upon written notice.

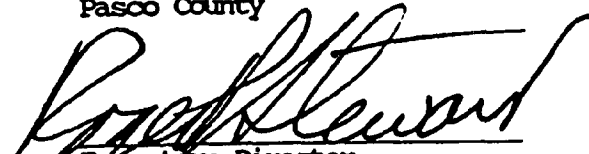
In witness hereto, the parties have executed this Agreement by their duly authorized officials.

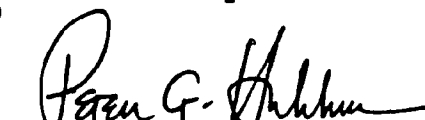

County Administrator,
Hillsborough County

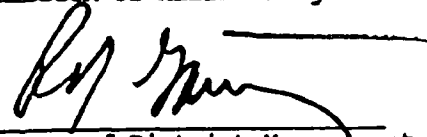

County Administrator,
Manatee County

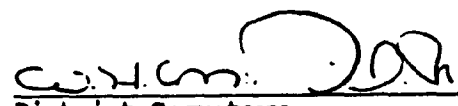

County Administrator,
Pasco County



County Administrator,
Pinellas County



Executive Director,
Environmental Protection
Commission of Hillsborough Co.

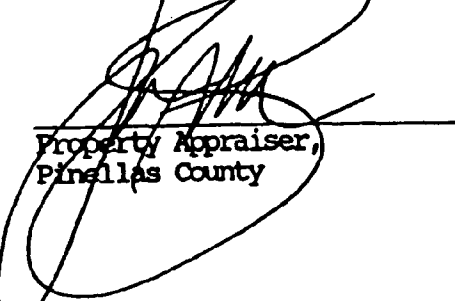

Executive Director,
Southwest Florida Water
Management District


Director of District Management,
Department of Environmental
Regulation


District Secretary,
Department of Transportation



District Administrator,
Department of Health and
Rehabilitative Services


Executive Director,
Tampa Bay Regional
Planning Council

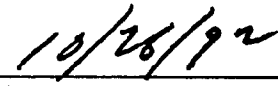

Property Appraiser,
Pinellas County

JOINDER AGREEMENT

The Hillsborough County City-County Planning Commission agrees to abide by the terms of the Tampa Bay Regional Coordinating Council MEMORANDUM OF UNDERSTANDING, effective January 15, 1992, and in accordance with page six of the MEMORANDUM OF UNDERSTANDING, joins the Tampa Bay Regional Coordinating Council and its subordinate bodies.



Executive Director
Hillsborough County City-County
Planning Commission



Date

APPENDIX 3

TAMPA BAY REGIONAL PLANNING COUNCIL

**A STRATEGIC PLAN
FOR THE
TAMPA BAY REGIONAL
COORDINATING COUNCIL
(TBRCC)**

by

Estelio Breto, TBRCC

April 1992

EXECUTIVE SUMMARY

Most policies and issues addressed by local governments in the Tampa Bay region require some kind of geographic information in order to make decisions, hence the need for Geographic Information Systems (GIS) as both a resource management tool and a planning tool. GIS, as opposed to conventional filing and tracking information systems, demands considerable effort in data collection and compatibility. It is essential that this data matches an established standard format, otherwise information sharing becomes an impossible process. Consequently the data sharing process among local government agencies acquires, under these conditions, an important dimension: data in order to be shared must have standard formats and should be collected by standard procedures.

The ever-increasing complexity and interdependence of information, related to the issues on which local governments must make decisions, dictates the urgent need to identify issues of collective need among local agencies in a consensus manner. This report identifies elements that are essential for a Strategic Plan for the Tampa Bay Regional Coordinating Council (TBRCC). Issues and data are identified, prioritized and ranked in a consensus fashion. The TBRCC, as indicated in the Objectives of the Memorandum of Understanding, is a multiagency coordinating body created to promote the sharing of information among local and state organizations. As such, it requires a plan of action highlighting the main issues and data requirements that may be shared among agencies within the Tampa Bay region. The successful focus of a Strategic Plan element described in this report is by no means closed. On the contrary, it is an open plan to which can be added more issues. It will only become the final plan once it has been reviewed and approved by the Regional Advisory Committee and the TBRCC. Its purpose is to provide guidance, justification, and the establishment of directions for the TBRCC.

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APPENDICES

- Appendix 1 A Brief Historical Note on the *Futures Technique*
- Appendix 2 Brain-Storming Instructions and Results
- Appendix 3 Delphi Evaluation Instructions and Results
- Appendix 4 Cross-Impact Analysis Instructions and Results
- Appendix 5 Systems Impact Analysis Instructions and Results

INTRODUCTION

A multiagency management structure is imperative in order to facilitate the sharing of geographic data. Hence the creation of the TBRCC, which has been formed to establish a structure that allows agencies to share geographic data in a four-county area. The main function of this management structure is to allow experts from various organizations to gather into Technical Advisory Committees (TACs) called Consensus Groups and Subcommittees, to facilitate the development of standards. However, specific data requirements are often linked to those issues that management may wish to address at any particular point in time. Consequently, a Strategic Plan containing the most relevant issues that should be addressed in the Tampa Bay region within 1992-1993 needs to be outlined. This document enables specific data requirements and standards to be prioritized and facilitated.

However, each organization has its own priorities and concerns in relation to the functions it is expected to perform within the region. Therefore, identifying issues of collective need is difficult at best. In order to produce a Strategic Plan that represents the collective thoughts of the Council, a consensus building device, called *Futures Technique*, developed for large, segmented organizations like the TBRCC was used. This technique has been designed to identify components of a Strategic Plan such as the future directions, communal needs, feasibility of tasks and the highest level of impact on any organization. The Strategic Plan uses a description of issues to conceptually identify areas of collective concern that could then be prioritized in a consensus manner. Once these issues (areas of collective concern) are identified, the information requirements (data sets and standard procedures) necessary to address each issue will be generated. Standards and procedures are expected to be developed through Consensus Groups which will focus their activities on either transfer protocols or specific data sets.

The following outline describes the steps to the technique used to devise the Strategic Plan:

Strategic Plan:

- Identify issues of concern in the Tampa Bay region and the corresponding information (data areas) needed to address or resolve these issues (Brain-Storming Session).
- Rank these issues (and consequently information requirements) by importance to the organization. (Delphi-Evaluation Session).
- Identify how each issue impacts other issues (cross-interaction between issues), with the purpose of defining the ten most "dominant" and the ten most "critical" issues in the Tampa Bay region in terms of data sharing requirements (Cross-Impact Analysis Session).
- Identify the data areas that are most important to a particular issue (the ten most critical issues), thus identifying the critical information requirements for the Tampa Bay region. This will allow the development of the overall impact that each issue will have on the Tampa Bay region (Future Scenario) in terms of data sharing requirements (System Impact Analysis Session).

Standards Development:

- Specific data sets from previously identified data areas will be addressed by the Consensus Groups or Subcommittees.
- Straw man issue statements (for previously identified issues) will be developed by the co-chairs of each Consensus Group, in conjunction with the Central Information Unit (facilitator).
- Data sets (related to previously identified issues) will be documented through a data dictionary and quality and accuracy reports prepared by the Consensus Groups in conjunction with the Central Information Unit.

Chapter I

GOALS, OBJECTIVES AND METHODOLOGY OF THE STRATEGIC PLAN

1. Goals of the Strategic Plan

The long term goals of the Tampa Bay Regional Coordinating Council Strategic Plan are to:

- 1.1 Provide managers with the information they need to make sound and informed decisions throughout the Tampa Bay region.
- 1.2 Maximize the use of available resources by sharing this information on a statewide and regionwide basis.
- 1.3 Minimize redundant local government agencies efforts by reducing duplicative data collection activities among them.

2. Objectives of the Strategic Plan

The main objectives of the Strategic Plan for the Tampa Bay Regional Coordinating Council are to:

- 2.1 Outline the most dominant and critical issues (in terms of data requirements) that should be addressed by senior management in the Tampa Bay region within the years 1992-1993.
- 2.2 Identify the data areas associated to those most important and critical issues in the Tampa Bay region.
- 2.3 Identify the impact that will be generated by addressing these most important issues in the Tampa Bay region within the years 1992-1993.
- 2.4 Describe the future scenario that would emerge (in terms of data requirements) in the Tampa Bay region as a result of having addressed those critical and important issues.
- 2.5 Develop straw man issue statements for those most important issues in the region.
- 2.6 Document these data sets and develop standards via data dictionaries and quality and accuracy reports.

3. Some Notes on the Methodology Used to Generate the Strategic Plan

A two-day Strategic Plan workshop was organized with the members of the working group. The purpose of the workshop was to use the experience and informed judgement of the working group as the main input to the Strategic Plan. Through the use of what is known as the *Futures Technique*, (a revised version of the *Simulation Conference Methodology* first developed by R. Armstrong, M. Hobson and E.

Breto at the Institute of Local Government Studies, University of Birmingham, England, see Appendix 1) a combined and progressive application of Brain-Storming, Delphi-Evaluation, Cross-Impact Analysis and Scenario Construction techniques were made. A working group established by the Interim Regional Advisory Council (IRAC) (an organization provided for in the Memorandum of Understanding which refers to the staff members from the member agencies, the staff director, and other representatives as recommended) was asked to engage in the following procedures and activities:

- 3.1 A Brain-Storming session was held on February 11, 1992 at the Tampa Bay Regional Planning Council's conference room. Attending members of the IRAC assembled into six groups of three members each. Each group was asked to list the five most relevant issues that should be addressed in the Tampa Bay region during the years 1992-1993. The appropriate Brain-Storming forms (see appendix #2) were completed after each group discussion took place. Forms contained a list of the most relevant issues as seen by the various groups, as well as the five elements or factors that would be affected in the event a particular issue was to be addressed or resolved.
- 3.2 A summary list of those issues identified during the Brain-Storming session was prepared and provided to the working group. With the help of the Delphi method, each individual completed a Delphi form (see appendix #3) which outlined each member's own evaluation of the issues under consideration in terms of:

- The probability of each issue being addressed during the years 1992-1993 in the Tampa Bay region.
- The significance of the issue for the Tampa Bay region as a whole.
- The desirability of addressing the issue in the Tampa Bay region during the years 1992-1993.
- A self evaluation of each member's own expertise and knowledge in relation to the issues listed.

The corresponding probability histograms for each issue were drawn and the level of consensus (standard deviation) among members was determined. An "impact score" number, which reflects such consensus level and the importance of each issue as compared to another one, was calculated. The main objective at this point was to draw a list of the ten "most important" issues (those with the highest impact score) and also the ten "least important" issues (those with the lowest impact score). Impact scores for each issue were calculated according to the following equation:

$$EI = P * D * (E/8)$$

Where:

EI = Impact Score

P = Mean probability of suggested issue being addressed in Tampa Bay by 1992-1993

D = Desirability mode of each suggested issue

E = Mode of the working group's expertise and knowledge in relation to the issue being considered.

- 3.3 As a third step, working group members met February 19, 1992 at the Hillsborough County Environmental Protection Commission's conference room to attend the second day of the Strategic Plan workshop, where they completed a "Cross-Impact Analysis" evaluation. The Delphi evaluation generated a matrix (see appendix 4) which displayed the ten "most important" issues, and also the ten "least important" issues.

The main objective was to establish how each issue (once it is addressed) may "affect" or "impact" other issues by increasing the chances of having to address both issues simultaneously; namely the "cross-interaction effects" of one issue over another one. The final result was the identification of the ten "most dominant" and the ten "most critical" issues in the Tampa Bay region. These cross-interaction effects were then converted into "probabilities" of one issue affecting another one by using the following equation:

$$PW = pb * (Ia/ia)$$

Where:

PW = Probability (expressed in %) that an issue may be affected by other issues included in the matrix, either increasing or decreasing its probability of being addressed.

pb = Mean probability of those ten ranked most important issues during the Delphi evaluation.

ia = Mean impact score assigned to those affecting issues during the cross-impact analysis phase.

Ia = Impact score of those affected issues determined during the Delphi phase.

- 3.4 During the final phase of the workshop each working group member was asked to undertake a "System Impact Analysis" of those dominant and critical issues identified in the previous step. For this purpose, a NEXUS card was prepared (see Appendix #5) displaying along its perimeter those factors suggested by the working group

members during the Brain-Storming phase (see Appendix #1). Such factors are now considered to provide a description of the system, in this case the Tampa Bay region.

The task consisted in establishing the impact of dominant or critical issues upon each factor describing the system (Tampa Bay); thus identifying the critical information requirements for the Tampa Bay region (NEXUS card). By superimposing each of the NEXUS cards completed by every working group member, a cumulative and simultaneous future scenario (Strategic Plan) was thereby generated. The main features of this scenario are discussed in Chapter III.

Chapter II

ANALYSIS AND RESULTS OF THE BRAIN-STORMING AND DELPHI EVALUATION

1. Results of the Brain-Storming Session

Members of the working group gathered into six groups of three members each. Based on their own judgement and experience and through individual group discussions, they were asked to make a list of five of the issues in the Tampa Bay region they believe need to be addressed in the years 1992-1993 (see Appendix 2). They were also asked to identify the factors that would be affected, if it was to be assumed that the issues they have listed were addressed in Tampa Bay during the target years.

There were thirty issues identified by the working group. Duplicate and/or overlapping definitions of issues were deleted. What follows is a list of those clearly identifiable issues after this search took place.

TABLE #1

TAMPA BAY REGIONAL ISSUES

ISSUES	FACTORS THAT WOULD BE AFFECTED
1. Ground water quality data standardized to be shared by multijurisdictional bodies.	<ul style="list-style-type: none">• Number of Septic tanks• Water demand• Hazardous waste site location
2. Effects of polluting industrial facilities on human health and solid waste	<ul style="list-style-type: none">• Air quality measurements• Water quality measurements• Economic industrial indicators• Number of regulatory agencies• Data dissemination bodies
3. Effects of land use, zoning and redevelopment on the habitat and ecosystem	<ul style="list-style-type: none">• Storm water impact/flooding• Socioeconomic indicators• Traffic access and utilities

TABLE #1 (Contd)

ISSUES	FACTORS THAT WOULD BE AFFECTED
4. Water quality eutrophication and its impact on living organisms	<ul style="list-style-type: none"> • Run off water quality and • Atmospheric input measurements • Land use total acreage
5. Traffic congestion reduction and road infrastructure	<ul style="list-style-type: none"> • Network • Airports • Mass transit • Land use
6. Standard population projections and statistics	<ul style="list-style-type: none"> • Water supply • Federal funding • Road's LOS and basic services supply
7. Overlap and duplicative services between state and county regulations	<ul style="list-style-type: none"> • Type of permits required • Type of licenses required
8. Local governments real estate statistics	<ul style="list-style-type: none"> • Type & number of housing units • Number of units for sale • Unit cost per type • Number of leasing units
9. Standard street mapping methodology: compatible names and addresses in all counties	
10. Creation of GIS data buffer encompassing common boundaries between agencies	<ul style="list-style-type: none"> • GIS data formats • Type of GIS systems

TABLE #1 (Contd)

ISSUES	FACTORS THAT WOULD BE AFFECTED
11. To establish a data exchange standard format: data dictionary quality and accuracy report	<ul style="list-style-type: none"> • Zoning categories • Land use types • Type of GIS systems
12. Base parcel maps for land use and transportation studies at local government level: modelling urban areas; E.g., land use location, trip generation etc.	<ul style="list-style-type: none"> • Economic resources commitment • Traffic congestion • Road infrastructure
13. Identify environmental resources by sensitivity level	
14. Vacant land inventory for parks and recreation provision to meet present and future population needs	<ul style="list-style-type: none"> • Demographic indicators • Total vacant land acreage • Total acreage of vacant land by ownership type
15. Law enforcement and jails	<ul style="list-style-type: none"> • Population growth • High crime area statistics • Road maps • Socioeconomic indicators
16. Socioeconomic indicators forecasting and regional development	
17. Water supply and infrastructure to meet population growth: surface and ground water characteristics	<ul style="list-style-type: none"> • Demographic indicators • Wells availability and location • Storm water sources

TABLE #1 (Contd)

ISSUES	FACTORS THAT WOULD BE AFFECTED
18. Air quality: population and traffic projections regarding pollution data	<ul style="list-style-type: none"> • Pollution sources: types/level • Mortality and rate of birth
19. Procedures in hurricane preparedness, evacuation and recovery planning	<ul style="list-style-type: none"> • Topographic information • Transportation network • Demographic indicators
20. Flood control: effects on land use area, drainage and erosion	<ul style="list-style-type: none"> • Road and housing infrastructure • Land use distribution and location • Topographic information

2. Results of the Delphi Evaluation

During the Delphi Evaluation Phase, members carried out an evaluation of those issues listed previously. Each member was provided a Delphi evaluation form (see Appendix 3) which contained the list of issues. Four basic topics were evaluated.

- Probability of the issue being addressed in the years 1992-1993;
- Significance of the issue for the Tampa Bay Region;
- Desirability of the issue being addressed during the years 1992 - 1993; and
- A self-evaluation of their knowledge and experience in relation to the issue under consideration.

Applying the equation described in Chapter I, item 3.2, an "impact score" number was calculated for each issue. This impact score number reflects the importance of one issue over another, reflecting a ranking of issues by their importance. Issues with the highest impact scores are considered (in this first ranking) the most important issues to be addressed in Tampa Bay in terms of data sharing requirements, as perceived by the working group. Issues which showed the lowest impact scores are considered to be the least important issues in the Delphi ranking evaluation. The following tables contain the lists of the most and least important issues according to the Delphi evaluation.

TABLE # 2

Most Important Issues
(Delphi Ranking)

No.	ISSUE DESCRIPTION	IMPACT SCORE
1.	Water supply infrastructure to meet population growth: surface and ground water characteristic	284
2.	Flood control: effects on land use area, drainage and erosion	278
3.	Water quality: eutrophication and its impact on living organisms	276
4.	Standard street mapping methodology: compatible names and addresses in counties	245
5.	Standardization of water quality data to be shared by multi-jurisdictional bodies	162
6.	To establish a data exchange standard format: data dictionary, data directory, and quality accuracy report	159
7.	Procedures in: hurricane preparedness, evacuation and recovery planning	150
8.	Effects of land use, zoning and redevelopment on the habitat and ecosystem	141
9.	Effects of polluting industrial facilities on human health and solid waste	131
10.	Overlapping and duplicate services between state and county regulations; e.g. permits, licenses etc.	128

TABLE # 3

Least Important Issues
(Delphi Ranking)

No.	ISSUE DESCRIPTION	IMPACT SCORE
1.	Base parcel maps for land use and transportation studies at local government level; modeling urban areas for land use location and trip generation.	116
2.	Create a GIS data buffer encompassing common boundaries between agencies	109
3.	Identify environmental resources by sensitivity level: oil spill, habitat, etc.	107
4.	Air quality: population and traffic projections regarding pollution data	73
5.	Traffic congestion reduction and road infrastructure	55
6.	Standardization of population projections and statistics	33
7.	Vacant land inventory for parks, beaches and recreation facilities to meet present population needs	14
8.	Law enforcement needs and jails	12
9.	Local government real estate statistics	10
10.	Socioeconomic indicators forecasting for regional development	6

Chapter III

ANALYSIS AND RESULTS OF THE CROSS-IMPACT AND SYSTEM IMPACT ANALYSIS EVALUATION

1. Results of the Cross-Impact Analysis Session

A Cross-Impact Analysis of the ranked list of issues obtained during the Delphi evaluation was undertaken by the working group. A matrix displaying the ten most important issues, according to the highest impact scores from the Delphi evaluation, was provided to the working group. The ten least important issues were forming the column titles (see Appendix # 4). The task was to establish how the most important issues (assuming they have been addressed) would impact or affect the least important issues. This impact would mean interdependence (cross-interaction) between two issues, suggesting that such issues may have to be addressed simultaneously.

The main objective of this phase is twofold: to identify and rank the most dominant and the most critical issues (thus identifying the critical information related to those issues), and to observe if any issue has been reshuffled in its ranking importance. A review of the Cross-Impact Analysis results showed the following (revised) list of issues and the new "average" impact score which has been assigned to them.

TABLE # 4

Most Dominant Issues
(Cross-Impact Ranking)

No.	ISSUE DESCRIPTION	CROSS-IMPACT SCORE ASSIGNED
1.	Water supply infrastructure to meet population growth: surface and ground water characteristics	234
2.	Water quality: eutrophication and its impact on living organisms	204
3.	Flood control: effects on land use area, drainage and erosion	200
4.	Standard street mapping methodology: compatible names and addresses in counties	177
5.	To establish a data exchange standard format: data dictionary, data directory and quality & accuracy report	128
6.	Standardization of water quality data to be shared by multijurisdictional bodies	114
7.	Procedures in: hurricane preparedness, evacuation and recovery planning	111
8.	Effects of land use, zoning and redevelopment on the habitat and ecosystem	107
9.	Effects of industrial pollution on human health and solid waste	104
10.	Overlapping and duplicate services between state and county regulations; e.g., permits, licenses, etc.	70

It should be noted that four issues have been reshuffled after the Cross-Impact analysis took place:

- The number one and most dominant issue that should be addressed in Tampa Bay in relation to data sharing continues to be: **Water supply infrastructure to meet population growth/ground and surface water characteristics.**
- The **water quality eutrophication and its effect on living organisms** has now been ranked as the second most "dominant" issue in Tampa Bay in terms of data sharing among local agencies.
- **Flood control and its effects on land use area, drainage and erosion** has now been considered the third most dominant issue as a result of the Cross-Impact analysis undertaken by the working group.
- The establishment of a **standard street-mapping methodology with compatible names and addresses in counties** continues to be considered the forth most dominant issue that should be addressed by Tampa Bay local agencies.
- The establishment of a **data exchange standard format though a data dictionary quality and accuracy report** is the fifth most dominant issue that should be addressed in the near future according to the working group.

Impact scores assigned to each issue by the working group when completing the Cross-Impact Analysis Matrix (see Appendix 4) have now been converted into probabilities by applying the appropriate equation included in Chapter I, Item 3.3. The following Cross-Impact Matrix displays those probabilities expressed in percentage:

The previous matrix should be interpreted as follows:

- There is a 60.9 % probability that "dominant issue #1" and the "sensitive issue #4" would have to be addressed parallel or simultaneously. This is due to the cross-interaction between both issues.
- There is a 34 % probability that "dominant issue #5" and "sensitive issue #1" would have to be addressed in parallel to share the necessary data related to these issues. The analysis could continue through each issue included in the Cross-Impact matrix.

As a result, the list of most sensitive issues has been reshuffled. Table # 4 shows the final ranking for the most "sensitive" issues.

TABLE # 5
Most Sensitive Issues
(Cross-Impact Ranking)

No.	ISSUE DESCRIPTION	AVERAGE PROBABILITY OF BEING IMPACTED BY ALL DOMINANT ISSUES (%)
1.	Air quality: population and traffic projections regarding pollution data	60.6
2.	Traffic congestion reduction and road infrastructure	46.1
3.	Law enforcement needs and jails	32.5
4.	Identify environmental resources by sensitivity level: oil spill, habitat etc	30.1
5.	Create a GIS data buffer encompassing common boundaries between agencies	29.7
6.	Base parcel maps for land use and transportation studies at local government level: modeling urban areas for land use location and trip generation	29.6
7.	Standardization of population projections and statistics	21.6
8.	Local government real estate statistics	16.5
9.	Vacant land inventory for parks, beaches and recreation facilities to meet present population needs	11.0
10.	Socioeconomic indicators forecasting for regional development	3.3

2. Results of the System Impact Analysis Session: Future Scenarios

During the final phase of the workshop the working group carried out a "System Impact Analysis" of those dominant issues identified previously in the Cross-Impact Analysis phase. A "NEXUS" card was prepared (see Appendix 5) which displayed along its perimeter those factors suggested by the working group during the Brain-Storming session (see Appendix 2). These factors now provide a consensus of collective data concerns shared by Tampa Bay area local government and affected agencies.

The major task was to identify the impact a dominant issue would have over each factor, or data area, describing the system (Tampa Bay), thus identifying the critical information sharing requirements for the Tampa Bay region during 1992-1993.

The objective of this phase was twofold: to obtain the final ranking importance of dominant issues in terms of its probability of being addressed, and to identify the corporate value of those data areas associated with them.

A NEXUS board has also been prepared which allows the measurement of the future cumulative short-term impact of each issue over the above mentioned factors, and consequently defines its "corporate" value. By superimposing each of the NEXUS cards completed by the working group on this NEXUS board, the two following cumulative future scenarios were generated.

2.1 Scenario 1

Need to be
Addressed
(Percentage
Probability):

Impacted Issues

1) 80% Establish data exchange standards

Implies

- a) The development of a quality and accuracy report and data dictionary on data of corporate value
- b) Protocols for data exchange.

2) 75% Water quality data

Critical/Sensitive Issues

- a) 70% Population and traffic projection
- b) 53% Parallel traffic congestion/road infra-structure regarding air quality
- c) 34% Base parcel maps for land use/transportation studies

- 3) 72% Procedures concerning hurricane preparedness, evacuation and recovery plan.

Critical/Sensitive Issues

- a) 64% Population/traffic projections
- b) 49% Traffic congestion/road infrastructure
- c) 32% GIS buffer with common boundaries to share data between local government agencies

- 4) 66% The effects of polluting industrial facilities on human health and solid waste.

Critical/Sensitive Issues

- a) 56% Parallel population and traffic projections
- b) 43% Traffic congestion and road infrastructure
- c) 28% Environmental resources by sensitivity levels (oil spills, hazardous waste, etc.);
- d) 28% Creating a GIS buffer with common boundaries to share data between local government agencies.

- 5) 65% The effect of land use, zoning and redevelopment on the habitat and ecosystem

Critical/Sensitive Issues

- a) 61% Population and traffic projections
- b) 46% Road infrastructure and traffic congestion
- c) 30% Parcel maps for land use and transportation studies at the local government level

- 6) 65% Flood control and its effect on land use designation, drainage and erosion.

Critical/Sensitive Issues

- a) 60% Population and traffic projection;
- b) 45% Traffic congestion and road infrastructure;
- c) 15% Local government real estate statistics on housing costs, housing for sale/rent;

d) 30% Identifying environmental resources by sensitivity levels;

e) 11% Standard population projections.

7) 65% **Water quality eutrophication and its impact on living resources**

Critical/Sensitive Issues

a) 59% Population and traffic projections

b) 30% Identification of environmental resources by sensitivity levels

c) 30% Maintaining a GIS buffer with common boundaries designed to share data between local government agencies

8) 64% **Overlapping and duplicate services lent by state and county agencies**

Critical/Sensitive Issues

a) 55% Population and traffic projections

b) 27% Maintaining a GIS buffer with common boundaries designed to share data between local government agencies

c) 27% Identification of environmental resources by sensitivity levels

d) 27% Base parcel maps for land use and transportation studies

9) 62% **Water supply infrastructure to meet population growth, including both ground and surface water characteristics**

Critical/Sensitive Issues

a) 61% Population and traffic projections

b) 46% Traffic congestion and road infrastructure

c) 30% Maintaining a GIS buffer with common boundaries to share data between local government agencies

10) 61% **Development of a standard street mapping methodology with compatible names and addresses in every county**

The probabilities that the various issues included in this scenario would be addressed in the Tampa Bay region, were calculated through the following equation:

$$Pw1 = Pb * (ia1/Ia1)$$

where:

Pw1 = Final probability of a dominant issue being addressed in the Tampa Bay region by the years 1992-1993

Pb = Mean probability of dominant issue established during the Delphi phase.

ia1 = Impact score assigned to each issue by working group on the NEXUS card.

Ia1 = Impact score to be distributed for each issue by the working group on the NEXUS card.

2.2 Scenario 2

Scenario 2 describes the situation that would emerge if the ten most important and dominant issues described in Scenario 1 were addressed in the Tampa Bay region. It identifies the impact generated by each dominant issue (in terms of probabilities) over the data areas included on the NEXUS card; thus identifying the "corporate" value of each data area. The underlying assumption is that the higher the probability that an issue (of collective concern) may impact a data area, the greater the "corporate" value of the data area will be. By the same token the greater the corporate value of data, the more need there will be to share such data among local agencies in the Tampa Bay area.

Therefore if the ten most dominant issues in the Tampa Bay area listed in Scenario 1 were addressed, the following information related to these issues will have to be shared among government agencies:

- | | | |
|-----|------|---|
| 1) | 100% | Common geographic information systems data formats |
| 2) | 64% | Information on surface and ground water characteristics |
| 3) | 63% | Data on storm water sources having corporate value |
| 4) | 58% | Information on standard data collection formats related to the ten most important issues listed |
| 5) | 47% | Information on data collection methods will have corporate value among local agencies in the region |
| 6) | 45% | Data on environmental effects on the habitat |
| 7) | 44% | Information regarding general data on wells would have corporate value |
| 8) | 43% | Data on the receiving-water effects on Tampa Bay |
| 9) | 42% | Water supply data |
| 10) | 40% | Information regarding storm water flooding measurements will have corporate value |

The probabilities that the various data areas included in this scenario would have corporate value among local government agencies in the Tampa Bay region, were calculated through the following equation:

$$\text{PDCV} = \text{FAPIA} * (\text{CISADA}/\text{ACISAI})$$

where:

PDCV = Probability of identified data area having corporate value.

FAPIA = Final average probability of all issues being addressed as a result of the system impact analysis phase.

ACISAI = Mean cumulative impact score assigned to issues on NEXUS cards.

CISADA = Cumulative impact score assigned to each data area on NEXUS board.

RECOMMENDATIONS

Four of the six objectives slated for the Strategic Plan (see Chapter I, Item 2) have now been achieved. First, the most important and critical issues (in terms of data requirements) which should be addressed by senior management in Tampa Bay have been identified. Secondly, the data areas associated to those most important and critical issues have been clearly identified. Also, the impact that would be generated by addressing these issues, as well as the future scenarios that would emerge as a result have been described. The following is a list of recommendations that should be pursued to fulfill the two remaining Strategic Plan objectives:

1. At least five Consensus Groups are necessary to address the following issues:
 - Development of data exchange standard formats for information transfer and information sharing among local government agencies.
 - Development of standards for water quality data to be shared by multijurisdictional bodies.
 - Procedures in hurricane preparedness, evacuation and recovery planning.
 - Demographic and traffic projections
 - Traffic congestion and road infrastructure.

Chairmen for these consensus groups should be appointed to develop a straw man issue statement for each issue.

2. Seven Technical Advisory Committees should be formed to define and document (via data dictionary and quality and accuracy reports) the following specific data sets:
 - GIS data formats
 - Surface and ground water characteristics
 - Storm water sources
 - General data on wells
 - Storm water flooding measurements
 - Water supply
 - Receiving-waters effects on Tampa Bay

APPENDICES

APPENDIX 1

A Brief Historical Note on the *Futures Technique*

The *Futures Techniques* has come to be known as the combined and progressive application of four sociotechnological forecasting methods: a) Brain-storming, b) the Delphi method, c) Cross-impact Analysis and d) Scenario Construction. They have been widely applied both as a tool for "generating" or amending complex mathematical simulation models (see Reference 1) and as a sociotechnological forecasting tool (see Reference 2).

The Delphi Method

The first experiments with the Delphi method were undertaken in 1956 by the mathematician Olaf Helmer (see Reference 3) at the Rand Corporation in Santa Monica, California. The work carried out by Helmer had as its main objective the rationalization of expert "opinions" about a specific issue. In this particular case, the issues concerned American space program's ability to put a man on the moon by the 1960's. Helmer's work based its results on three fundamental conditions:

- a) *Anonymity*: the sample of experts do not know about those policies and issues which have been identified by other experts included in the sample, thereby avoiding contamination of results.
- b) *Statistical Evaluation*: the probability of a policy/issue being addressed is generated in relation to a specific date or year. The "mean," "mode," and "interquartile range" are calculated for each policy/issue under different probabilities of occurrence.
- c) *Feed-back of the Reasoning Used by Experts*: statistical results are returned to the experts so that they may reevaluate those policies/issues which fall outside the interquartile ranges, thereby generating new probabilities of occurrence.

The Delphi method allows topic formalization and legitimization that would otherwise be ignored when identifying policies/issues and its related data sharing requirements as part of a Strategic Plan. It ultimately helps to reach a level of consensus among experts in relation to specific issues.

The Cross-Impact Analysis Method

In many cases, addressing or implementing certain policies/issues and identifying related data sharing requirements within a given system, (e.g. the Tampa Bay region) may trigger up a multiplying effect which will modify the probability and time of other issues being addressed.

The Cross-Impact Analysis method helps to identify the impact generated by addressing a particular issue and related data sharing requirements, over the probability that other issues and respective data requirements be addressed in a specific period of time. Using the Cross-Impact evaluation matrix will help to analyze and explore, in a systematic way, the crossed interaction that exist between the various issues and its data sharing requirements to be considered.

The main purpose of the Cross-Impact evaluation is to improve the internal consistency of those issues identified during the Delphi stage, and also to clarify experts' assumptions by confronting them with their own inconsistencies.

Scenario Construction

The concept and method of "Scenario Construction" in the realm of institutional planning was first developed by Herman Kahn (see Reference 4) in 1967 at the Hudson Institute in New York. In many cases policies or issues addressed by an organization in a region (e.g. the Tampa Bay region) are fundamentally based on certain assumptions and hypothesis made about the future. Consequently the results usually show us the inefficiencies of the policies we implement and the issues we addressed. This is mainly due to the incomplete consideration given to the future that emerges which is usually both simultaneous and dynamic. Namely, the time factor is a basic prerequisite when making assumptions about the future. Top management and high level decision-makers in any organization are then confronted with a series of possible alternatives or what is known in policy analysis jargon as "Alternative Future Scenarios". The problem is therefore reduced to the following question: For which of those possible alternative futures shall we formulate our Strategic Plan?

References

- (1) *The ESAL Model: A Mathematical Simulation Model for Latin America* by E. Breto, Simon Bolivar University, Caracas Venezuela 1979
- (2) *Simulation Conference Methodology* by R.H.R. Armstrong, M. Hobson and E. Breto, Institute of Local Government Studies, University of Birmingham, Birmingham - England 1973
- (3) *Analysis of the Future - The Delphi Method* by Olaf Helmer, The Rand Corporation, Santa Monica - California 1960
- (4) *The Year 2,000: A Framework for Speculation on the Next Thirty-Three Years* by H. Kahn and A. Wiener, MacMillan Company, N.Y. 1967
- (5) *The S.A.U.C.O. Urban Community Game: A Gaming Technique to Study the Planning Process in Latin American Communities* by E. Breto, The Student Publication of the School of Design, Volume 23, North Carolina State, University, Raleigh, N.C. 1974.
- (6) *A Methodology for the Forum Humanum: A Club of Rome Project* by E. Breto, World Futures, Volume 18, August 18, 1981.
- (7) *The Delphi Method - Techniques and Applications* by Linstone H. and Turof M., Addison-Wesley Publishing Co. Inc. 1975
- (8) *Technological Forecasting* by R.U. Ayres, McGraw-Hill, Inc. Book Company, 1969
- (9) *Delphi and Cross-Impact Techniques: Effective Combination for Systematic Future Analysis* by S. Enzer, Institute for the Future, 1975

APPENDIX 2

FUTURES TECHNIQUE

BRAIN - STORMING PHASE

BASIC INSTRUCTIONS

1. OBJECTIVE

The main objective of this phase is to identify which issues (according to your own view and experience) should be addressed or implemented in the Tampa Bay Region in 1992-1993. At the same time we expect you to identify those "factors" which would be affected in case a particular issue. Let us illustrate this with an example:

Issue No. 1

"To outline a low-income group housing construction plan that would allow local governments in the region to reach a target of 50,000 housing units built by the end of 1993"

Possible affected factors if above issue is addressed:

- a. Unemployment rate
- b. Total number of homeless people in the region
- c. Drainage and sewage service
- d. Other factors

2. FORMAT

This phase of the Futures Technique should be carried out in small groups of three to four experts. Each group will complete the appropriate brain-storming form provided. After a brief discussion the group will propose five policies/issues, and will also identify those elements or factors that would be affected by them.

3. PROCEDURE FOR COMPLETING THE BRAIN-STORMING FORM

In the cluster which has been labeled as "POLICY/ISSUE No. 1 through 5," write down those issues that should be addressed or policies that should be implemented in the Tampa Bay region during 1992-1993.

Once you have described your issue or policy, please proceed to list those factors which would be affected in the event your suggested policy/issue was to be addressed or implemented.

BRAIN-STORMING PHASE POLICY IDENTIFICATION FORM		Institution _____ Group # _____
POLICY/ISSUE	No. 1	FACTORS WHICH MAY BE AFFECTED
		a.
		b.
		c.
		d.
POLICY/ISSUE	No. 2	FACTORS WHICH MAY BE AFFECTED
		a.
		b.
		c.
		d.
POLICY/ISSUE	No. 3	FACTORS WHICH MAY BE AFFECTED
		a.
		b.
		c.
		d.
POLICY/ISSUE	No. 4	FACTORS WHICH MAY BE AFFECTED
		a.
		b.
		c.
		d.

**STORMING PHASE
POLICY IDENTIFICATION FORM**

Institution _____ Group# _____

POLICY/ISSUE	No.	FACTORS WHICH MAY BE AFFECTED
RECREATION PARKS BEACHES	1	a. DEMOGRAPHICS b. VACANT LAND AVAILABILITY c. INVENTORY d.
CITY LAW ENFORCEMENT, JAILS	2	a. DEMOGRAPHICS b. ROAD MAPS c. POPULATION GROWTH d.
COMMUNITY DEVELOPMENT AFFORDABLE HOUSING ECONOMIC DEVELOPMENT BUSINESS DEVELOPMENT	3	a. DEMOGRAPHICS b. INFRASTRUCTURE c. SOCIO-ECONOMIC d. LAND USE
WATER SUPPLY	4	a. POPULATION GROWTH b. GROUNDWATER CHARACTERISTICS c. SURFACE WATER CHARACTERISTICS d. INFRASTRUCTURE
AIR QUALITY	5	a. POPULATION GROWTH b. TRAFFIC PROJECTIONS c. MONITORING INFO d. POLLUTION SOURCES

Sum C
Pat
Skinner

**BRAIN-STORMING PHASE
POLICY IDENTIFICATION FORM**

Institution _____ Group# _____

POLICY/ISSUE	No. 1	FACTORS WHICH MAY BE AFFECTED
Data collection to be done by Census Tract.		a. current data collect. methods b. more efficient decision making c. standardize data format d.
Pursue greater cooperation between E.P.C. and other agencies to reduce duplication and overlap of services	No. 2	FACTORS WHICH MAY BE AFFECTED a. agencies to delegate authority to local agencies b. c. d.
Real Estate / Govt Agencies Housing Authority data collection - accessibility of it	No. 3	FACTORS WHICH MAY BE AFFECTED a. b. c. d.
method for mapping streets, need standards	No. 4	FACTORS WHICH MAY BE AFFECTED a. b. c. d.
POLICY/ISSUE	No. 5	FACTORS WHICH MAY BE AFFECTED a. b. c. d.

Miller

STORMING PHASE

POLICY IDENTIFICATION FORM

Institution _____ Group# _____

POLICY/ISSUE	No.	FACTORS WHICH MAY BE AFFECTED
Population Statistics and Projection should be standardized.	1	a. Infrastructure - b. Water supply - c. Federal Funding - d. Regional Planning -
Create a GIS Data Buffer encompassing Common boundaries between Agencies.	2	a. Common GIS Data Formats b. Various GIS Systems c. d.
Establish a Data Exchange FORMAT.	3	a. Zoning-Land use b. Various GIS Systems c. d.
	4	a. b. c. d.
	5	a. b. c. d.

Don Moore's PCDEM
Holly Greening - TBNEP

**BRAIN-STORMING PHASE
POLICY IDENTIFICATION FORM**

Institution _____

Group# _____

POLICY/ISSUE	No. 1	FACTORS WHICH MAY BE AFFECTED
Ground water quality		<ul style="list-style-type: none"> a. hazardous waste site location & effects b. septic tank effects c. effects on receiving waters, especially Tampa Bay & other big water bodies d. water demand (salt water intrusion)
POLICY/ISSUE	No. 2	FACTORS WHICH MAY BE AFFECTED
Effects of a polluting industrial facilities	→	<ul style="list-style-type: none"> a. carcinogenic effects / human health effects b. environmental quality (air & water) c. economic considerations d. dissemination of data/information including regulatory agencies
POLICY/ISSUE	No. 3	FACTORS WHICH MAY BE AFFECTED
Land use, zoning, redevelopment		<ul style="list-style-type: none"> a. stormwater impacts - flooding & water quality b. traffic access, utilities c. environmental effects - habitat, sensitive lands d. socioeconomic & education
POLICY/ISSUE	No. 4	FACTORS WHICH MAY BE AFFECTED
Water quality, eutrophication and effects on living resources		<ul style="list-style-type: none"> a. runoff quality & quantity b. land use, zoning c. user benefit d. atmospheric inputs, groundwater inputs
POLICY/ISSUE	No. 5	FACTORS WHICH MAY BE AFFECTED
Evaluate effect of intervention on cocaine babies		<ul style="list-style-type: none"> a. human vital statistics b. intervention effect by censuses tract c. medical records of pediatric patients d. socio-economic effects of parents

gull

**DOWN-STORMING PHASE
POLICY IDENTIFICATION FORM**

Institution _____ Group# _____

POLICY/ISSUE	No. 1	FACTORS WHICH MAY BE AFFECTED
Population projections and estimates for County and subareas.		a. infrastructure planning b. LOS analysis c. comprehensive plans d. existing land use
POLICY/ISSUE	No. 2	FACTORS WHICH MAY BE AFFECTED
Current Land Use filed for various uses. - comparable codes. (environmental areas).		a. redrawing the inventory. b. c. d.
POLICY/ISSUE	No. 3	FACTORS WHICH MAY BE AFFECTED
Base parcel maps for land use, transportation studies.		a. major resource commitment. b. c. d.
POLICY/ISSUE	No. 4	FACTORS WHICH MAY BE AFFECTED
Identify environmental resources by sensitivity level		a. b. c. d.
POLICY/ISSUE	No. 5	FACTORS WHICH MAY BE AFFECTED
Water quality data - multi-jurisdictional water bodies		a. b. c. d.

**BRAIN-STORMING PHASE
POLICY IDENTIFICATION FORM**

Institution _____ Group# _____

POLICY/ISSUE	No.	FACTORS WHICH MAY BE AFFECTED
Hurricane Preparedness evacuation planning preparedness during recovery	1	a. topographic info b. transportation network c. demographics d.
Water Quality Fresh Salt Groundwater	2	a. b. demographics c. stormwater sources d. well data
Demographic info	3	a. Census b. c. d.
Traffic Congestion Reduction - infrastructure	4	a. network b. airports c. mass transit d. land use
Flood Control	5	a. topographic b. infrastructure c. land use d.

APPENDIX 3

FUTURES TECHNIQUE

DELPHI PHASE

BASIC INSTRUCTIONS

Each page of the Delphi phase which has been given to you contains a brief description of those issues that were identified during the Brain-storming phase. Please read them carefully and proceed with your Delphi evaluation according to the instructions outlined below.

1. PROBABILITY OF ISSUE BEING ADDRESSED

Indicate the probability that an issue will be addressed (during the years 1992 and 1993) for each issue included in your list. Assign a probability between 10 and 100 for each issue, and then write it down under the cell which has been labeled with the letter "P", example:

P

60

2. DESIRABILITY OF THE ISSUE BEING CONSIDERED

Indicate with a positive sign (+) or a negative sign (-) how desirable or not is the issue under consideration: + = desirable, - = not desirable. At the same time, please indicate the strength of your evaluation by using the numeric scale which has been outlined below:

1	2	4	8
Very little interest	Some interest	Considerable interest	Very much interest

Place your evaluation under the cell which has been labeled with the letter "D."

Example:

D

-4

3. **SIGNIFICANCE OF THE ISSUE UNDER CONSIDERATION**

Using the numeric scale outlined below, indicate your opinion in relation to the importance each or issue will bear for the Tampa Bay region:

1	2	4	8
No importance	Some importance	Considerable importance	Very important

Write down your evaluation under the cell which has been labeled with the letter "S." Example:

S

2

4. **EXPERTISE OR KNOWLEDGE IN RELATION TO THE POLICY/ISSUE BEING CONSIDERED**

Undertake a self-evaluation of your knowledge and expertise in relation to the policy/issue being considered. Please use the following numeric scale for your self-evaluation:

1	2	4	8
Have no knowledge	Have some knowledge	Have professional knowledge	Have expert knowledge

Place your self-evaluation under the cell which has been labeled with the letter "E." Example:

E

8

DELPHI - PHASE

POLICY EVALUATION FORM

Page 1

Institution

FMRI

Group#

590-2110

POLICY/ISSUE	No. 1	POLICY/ISSUE	No. 6
water quality fresh salt groundwater	P D 100 8 S E 8 A	Census tract data collection	P D S E
POLICY/ISSUE	No. 2	POLICY/ISSUE	No. 7
Effects of a polluting industrial facility air quality water quality hazardous waste	P D 100 8 S E 4 4	Overlap of services a) Reduce duplication between EPC and other organizations	P D 100 8 S E 8 4
POLICY/ISSUE	No. 3	POLICY/ISSUE	No. 8
Landuse, zoning and redevelopment	P D 80 8 S E 8 4	Real Estate / Govt Agencies Housing Authority Data • having costs • if for sale Collection and accessibility of data	P D 10 1 S E 2 1
POLICY/ISSUE	No. 4	POLICY/ISSUE	No. 9
Water quality/eutrophication and <u>effects on living resources</u> • runoff quality/quantity • impact on organism/habitats	P D 100 8 S E 8 4	Street Mapping Methodology need for standard • naming (addressing) problems (We need this information - [unclear])	P D 80 4 S E 4 2
POLICY/ISSUE	No. 5	POLICY/ISSUE	No. 10
Evaluate effect of intervention on cocaine babies	P D 10 1 S E 1 1	Population Statistics and projection should be standardized (sample) • census data	P D 80 4 S E 4 2

 S = Significance
 C = Expertise

 P = probability
 D = Desirability

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Create a GIS buffer encompassing common boundaries between agencies <i>2 mile buffer to be shared w/ local bordering govts</i>	P	D	Identify environmental resources by sensitivity level <i>oil spill sensitivity</i> <i>critical habitat/endangered species</i>	P	D
	30	2		100	8
	S	E		S	E
	2	2		8	4
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Establish a data exchange format <i>data dictionary</i> <i>quality & accuracy report</i>	P	D	Water quality data - multi-jurisdictional bodies	P	D
	100	8			
	S	E		S	E
	8	4			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Population projection and estimates for County and subareas <i>(see also 1-10)</i>	P	D	Recreation, Parks & Beaches <i>demographics</i> <i>vacant land availability</i> <i>Inventory</i> <i>Marinas</i>	P	D
				100	8
	S	E		S	E
				8	4
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Current landuse files for various uses with compatible codes (environmental areas)	P	D	Law Enforcement & Jails <i>demographics</i> <i>road maps</i> <i>pop growth</i> <i>high crime areas</i>	P	D
				10	1
	S	E		S	E
				1	1
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Base parcel maps for land-use and transportation studies	P	D	Community Development affordable housing economic development business development <i>(characterizes Region demographics)</i>	P	D
	30	2		10	1
	S	E		S	E
	2	2		1	1

POLICY EVALUATION FORM

Page 3

Institution

FMRI

Group

POLICY/ISSUE	No. 1	POLICY/ISSUE	No. 6
per supply pop growth groundwater character surface water infrastructure	P D 70 8 S E 4 4	Water Quality Drainage • water quality • erosion • flood control	P D 80 4 S E 4 4
POLICY/ISSUE	No. 2	POLICY/ISSUE	No. 7
Air Quality pop growth traffic projection monitoring info pollution info (increasing)	P D 60 4 S E 2 4		P D S E
POLICY/ISSUE	No. 3	POLICY/ISSUE	No. 8
Hurricane Preparedness evacuation planning recovery planning	P D 30 4 S E 4 2		P D S E
POLICY/ISSUE	No. 4	POLICY/ISSUE	No. 9
Water Quality fresh salt groundwater	P D S E		P D S E
POLICY/ISSUE	No. 5	POLICY/ISSUE	No. 10
Traffic Congestion Re- duction - infrastructure	P D 10 1 S E 1 1		P D S E

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Ground water quality DATA FRESH SALT GROUND	P	D	Census tract data collection	P	D
	100	+8			
	S	E			
	8	2			
				S	E
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Effects of a polluting industrial facility	P	D	Overlap of services Reduce duplication between EPC and other organizations	P	D
	70	+4		50	+2
	S	E		S	E
	4	2		4	2
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Landuse, zoning and redvelopment	P	D	Real Estate / Govt Agencies Housing Authority Data	P	D
	90	+4	Collection and accesibil- ity of data	20	-1
	S	E		S	E
	4	4		2	2
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water quality/eutrophi- cation and effects on living resources	P	D	Street Mapping Methodology need for standard	P	D
	100	+8		10	-1
	S	E		S	E
	8	2		1	1
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Evaluate effect of inter- vention on cocaine babies	P	D	Population Statistics and projection should be standardized	P	D
	10	-1		90	+8
	S	E		S	E
	1	1		8	4

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Create a GIS buffer encompassing common boundaries between agencies	P	D	Identify environmental resources by sensitivity level / <i>CRITICAL HABITAT</i>	P	D
	90	+4		100	+4
	S	E		S	E
	4	4		8	2
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Establish a data exchange format	P	D	Water quality data - multi-jurisdictional bodies	P	D
	70	+4			
	S	E		S	E
	4	2			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Population projection and estimates for County and abareas	P	D	Recreation, Parks & Beaches / <i>MARINAS</i>	P	D
			demographics	70	+2
	S	E	vacant land availability	S	E
			Inventory	2	1
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Current landuse files for various uses with compatible codes (environmental areas)	P	D	Law Enforcement & Jails	P	D
			demographics	80	+2
	S	E	road maps	S	E
			pop growth	4	1
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Base parcel maps for land-use and transportation studies	P	D	Community Development	P	D
	60	+2	affordable housing	70	+1
	S	E	economic development	S	E
	2	4	business development	1	2

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Water supply	P	D	Flood Control/DRAINAGE	P	D
pop growth					
groundwater character	100	+8		100	+8
surface water	8	E		8	E
infrastructure	8	4		8	4
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Air Quality	P	D		P	D
pop growth					
traffic projection	70	-2			
monitoring info	8	E		8	E
pollution info	1	1			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Hurricane Preparedness	P	D		P	D
evacuation planning					
recovery planning	100	+4			
	8	E		8	E
	4	2			
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water Quality	P	D		P	D
fresh					
salt					
groundwater	8	E		8	E
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Traffic Congestion Re-	P	D		P	D
duction - infrastructure					
	20	-1			
	8	E		8	E
	1	1			

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Land water quality FRESH Ground SALT	P	D	Census tract data collection	P	D
	60	4			
	S	E		S	E
	8	1			
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Effects of a polluting industrial facility	P	D	Overlap of services "Reduce duplication" between EPC and other organizations	P	D
	60	4		40	2
	S	E		S	E
	8	1		2	1
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Landuse, zoning and redevelopment	P	D	Real Estate / Govt. Agencies Housing Authority Data Collection and accesibil- ity of data	P	D
	100	4		60	2
	S	E		S	E
	8	4		2	1
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water quality/eutrophication and effects on living resources	P	D	Street Mapping Methodology need for standard	P	D
				100	8
	S	E		S	E
				8	8
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Evaluate effect of intervention on cocaine babies	P	D	Population Statistics and projection should be standardized CENSUS Data	P	D
	40	2		100	8
	S	E		S	E
	8	1		8	8

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Create a GIS buffer encompassing common boundaries between agencies	P	D	Identify environmental resources by sensitivity level OIL SPILL ↑	P	D
	40	2		20	2
	S	E		S	E
	2	4		4	1
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Establish a data exchange format	P	D	Water quality data - multi-jurisdictional bodies	P	D
	10	1			
	S	E		S	E
	2	2			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Population projection and estimates for County and subareas	P	D	Recreation, Parks & Beaches demographics - vacant land availability Inventory landuse	P	D
				60	4
	S	E		S	E
				8	4
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Current landuse files for various uses with compatible codes (environmental areas)	P	D	Law Enforcement & Jails demographics road maps pop growth	P	D
				60	8
	S	E		S	E
				8	2
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Base parcel maps for land-use and transportation studies	P	D	Community Development affordable housing economic development business development	P	D
	70	4		10	2
	S	E		S	E
	8	4		1	1

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Water supply pop growth groundwater character surface water infrastructure	P	D	Flood Control drainage w. a. impact erosion	P	D
	70	4		100	8
	S	E		S	E
	8	1		4	2
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Air Quality pop growth traffic projection monitoring info pollution info	P	D		P	D
	60	4			
	S	E		S	E
	8	1			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Hurricane Preparedness evacuation planning recovery planning	P	D		P	D
	100	8			
	S	E		S	E
	4	2			
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water Quality fresh salt groundwater	P	D		P	D
	S	E		S	E
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Traffic Congestion Re- duction - infrastructure	P	D		P	D
	100	8			
	S	E		S	E
	8	2			

DELPHI - PHASE
POLICY EVALUATION FORM

Describe
Page 1 *Signature* Institution _____ Group# _____

POLICY/ISSUE		No. 1		POLICY/ISSUE		No. 6	
<i>WGH</i> Ground water quality	P	D		Census tract data collection <i>16/10</i>	P	D	
	TS	0					
	S	E			S	E	
	8	2					
POLICY/ISSUE		No. 2		POLICY/ISSUE		No. 7	
Effects of a polluting industrial facility	P	D		Overlap of services Reduce duplication between SPC and other organizations	P	D	
	60	5			20	4	
	S	E			S	E	
	7	3			4	4	
POLICY/ISSUE		No. 3		POLICY/ISSUE		No. 8	
Landuse, zoning and redevelopment	P	D		<i>Real Estate</i> Real Estate / Govt Agencies Housing Authority Data Collection and accesibil- ity of data	P	D	
	80	6			80	5	
	S	E			S	E	
	8	3			3	4	
POLICY/ISSUE		No. 4		POLICY/ISSUE		No. 9	
Water quality/ eutrophication and effects on living resources	P	D		Street Mapping Methodology need for standard <i>13/10</i>	P	D	
	75	4			75	4	
	S	E			S	E	
	4	5			8	4	
POLICY/ISSUE		No. 5		POLICY/ISSUE		No. 10	
Evaluate effect of inter- vention on cocaine babies	P	D		Population Statistics and projection should be standardized <i>*</i>	P	D	
	70	4			75	5	
	S	E			S	E	
	2	3			6	4	

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Create a GIS buffer encompassing common boundaries between agencies	P	D	Identify environmental resources by sensitivity level	P	D
	60	4		60	4
	S	E		S	E
	4	5		4	3
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Establish a data exchange format	P	D	Water quality data - multi-jurisdictional bodies	P	D
	75	4			
	S	E		S	E
	3	4			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Population projection and estimates for County and areas	P	D	Recreation, Parks & Beaches	P	D
			demographics	60	4
	S	E	vacant land availability	S	E
			Inventory	3	3
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Current landuse files for various uses with compatible codes (environmental areas)	P	D	Law Enforcement & Jails	P	D
			demographics	50	4
	S	E	road maps	S	E
			pop growth	4	3
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Base parcel maps for land-use and transportation studies	P	D	Community Development	P	D
	60	5	affordable housing	75	6
	S	E	economic development	S	E
	4	3	business development	5	4
			Revenue sources		

POLICY/ISSUE	No. 1	POLICY/ISSUE	No. 6
Water supply pop growth groundwater character surface water infrastructure	P D 60 8 S E 4 3	Flood Control <i>Drainage</i> P D 75 8 S E 4 3	
POLICY/ISSUE	No. 2	POLICY/ISSUE	No. 7
Air Quality pop growth traffic projection monitoring info pollution info	P D 75 8 S E 5 4		P D 2 S E
POLICY/ISSUE	No. 3	POLICY/ISSUE	No. 8
Hurricane Preparedness evacuation planning recovery planning	P D 75 8 S E 4 4		P D S E
POLICY/ISSUE	No. 4	POLICY/ISSUE	No. 9
Water Quality fresh salt groundwater	P D S E		P D S E
POLICY/ISSUE	No. 5	POLICY/ISSUE	No. 10
Traffic Congestion Re- duction - infrastructure	P D 75 8 S E 4 3		P D S E

DELPHI - PHASE
POLICY EVALUATION FORM

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POLICY/ISSUE	No. 1	POLICY/ISSUE	No. 6																
Ground water quality	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>60</td><td>4</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td>2</td><td>4</td></tr> </table>	P	D	60	4	S	E	2	4	Census tract data collection	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td></td><td></td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D			S	E		
P	D																		
60	4																		
S	E																		
2	4																		
P	D																		
S	E																		
Effects of a polluting industrial facility	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>80</td><td>4</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td>4</td><td>4</td></tr> </table>	P	D	80	4	S	E	4	4	Overlap of services Reduce duplication between EPC and other organizations	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>20</td><td>2</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td>2</td><td>8</td></tr> </table>	P	D	20	2	S	E	2	8
P	D																		
80	4																		
S	E																		
4	4																		
P	D																		
20	2																		
S	E																		
2	8																		
Landuse, zoning and development	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td></td><td></td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D			S	E			Real Estate / Govt Agencies Housing Authority Data Collection and accesibility of data	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>50</td><td>2</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td>2</td><td>1</td></tr> </table>	P	D	50	2	S	E	2	1
P	D																		
S	E																		
P	D																		
50	2																		
S	E																		
2	1																		
Water quality/eutrophication and effects on living resources	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>100</td><td>8</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td>8</td><td>8</td></tr> </table>	P	D	100	8	S	E	8	8	Street Mapping Methodology need for standard	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>60</td><td>4</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td>2</td><td>1</td></tr> </table>	P	D	60	4	S	E	2	1
P	D																		
100	8																		
S	E																		
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P	D																		
60	4																		
S	E																		
2	1																		
Evaluate effect of intervention on cocaine babies	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>10</td><td>4</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td>8</td><td>1</td></tr> </table>	P	D	10	4	S	E	8	1	Population Statistics and projection should be standardized	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>20</td><td>2</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td>2</td><td>1</td></tr> </table>	P	D	20	2	S	E	2	1
P	D																		
10	4																		
S	E																		
8	1																		
P	D																		
20	2																		
S	E																		
2	1																		

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Create a GIS buffer encompassing common boundaries between agencies	P	D	Identify environmental resources by sensitivity level	P	D
	50	4		80	4
	S	E		S	E
	4	2		4	4
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Establish a data exchange format	P	D	Water quality data - multi-jurisdictional bodies	P	D
	100	8			
	S	E		S	E
	8	8			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Population projection and estimates for County and subareas	P	D	Recreation, Parks & Beaches	P	D
			demographics	40	2
	S	E	vacant land availability	S	E
			Inventory	2	1
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Current landuse files for various uses with compatible codes (environmental areas)	P	D	Law Enforcement & Jails	P	D
			demographics	30	2
	S	E	road maps	S	E
			pop growth	2	1
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Base parcel maps for land-use and transportation studies	P	D	Community Development	P	D
	50	4	affordable housing	30	2
	S	E	economic development	S	E
	4	4	business development	2	1

POLICY/ISSUE		No. 1		POLICY/ISSUE		No. 6			
Water supply pop growth groundwater character surface water infrastructure	P	D	100	8	Flood Control, drainage, Erosion, stormwater quality	P	D		
	S	E				100	8	S	E
	8	4				8	8		
POLICY/ISSUE		No. 2		POLICY/ISSUE		No. 7			
Air Quality pop growth traffic projection monitoring info pollution info	P	D	100	8		P	D		
	S	E						S	E
	8	4							
POLICY/ISSUE		No. 3		POLICY/ISSUE		No. 8			
Hurricane Preparedness evacuation planning recovery planning	P	D	100	4		P	D		
	S	E						S	E
	4	2							
POLICY/ISSUE		No. 4		POLICY/ISSUE		No. 9			
Water Quality fresh salt groundwater fb 1.1	P	D				P	D		
	S	E						S	E
POLICY/ISSUE		No. 5		POLICY/ISSUE		No. 10			
Traffic Congestion Re- duction - infrastructure	P	D	100	8		P	D		
	S	E						S	E
	8	1							

POLICY/ISSUE	No. 1	POLICY/ISSUE	No. 6																
Ground water quality Water Quality data of all types to 3.4	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>80</td><td>+4</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D	80	+4	S	E			Census tract data collection <i>for the</i> <i>interim</i> to 1.10	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td></td><td></td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D			S	E		
P	D																		
80	+4																		
S	E																		
P	D																		
S	E																		
POLICY/ISSUE	No. 2	POLICY/ISSUE	No. 7																
Effects of a polluting industrial facility Hazardous waste Air Quality	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>60</td><td>+4</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D	60	+4	S	E			Overlap of services Reduce duplication between EPC and other organizations <i>regulations</i>	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>100</td><td>+8</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D	100	+8	S	E		
P	D																		
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Landuse, zoning and redvelopment	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>40</td><td>+2</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D	40	+2	S	E			Real Estate / Govt Agencies Housing Authority Data Collection and accessibil- ity of data on houses for sale, rent, prices etc.	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>60</td><td>+4</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D	60	+4	S	E		
P	D																		
40	+2																		
S	E																		
P	D																		
60	+4																		
S	E																		
POLICY/ISSUE	No. 4	POLICY/ISSUE	No. 9																
Water quality/eutrophi- cation and effects on living resources <i>runoff</i> <i>groundwater</i>	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>30</td><td>+2</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D	30	+2	S	E			Street Mapping Methodology need for standard <i>naming,</i> <i>counting</i> <i>classifying</i>	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>10</td><td>-2</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D	10	-2	S	E		
P	D																		
30	+2																		
S	E																		
P	D																		
10	-2																		
S	E																		
POLICY/ISSUE	No. 5	POLICY/ISSUE	No. 10																
Evaluate effect of inter- vention on cocaine babies	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>40</td><td>+2</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D	40	+2	S	E			Population Statistics and projection ³ should be standardized <i>census tract data for</i> <i>the interim</i>	<table border="1"> <tr><td>P</td><td>D</td></tr> <tr><td>60</td><td>+1</td></tr> <tr><td>S</td><td>E</td></tr> <tr><td></td><td></td></tr> </table>	P	D	60	+1	S	E		
P	D																		
40	+2																		
S	E																		
P	D																		
60	+1																		
S	E																		

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Create a GIS buffer encompassing common boundaries between agencies <i>jurisdictions</i> eg 1/2 mi of county boundary.	P	D	Identify environmental resources by <u>sensitivity level</u> ; critical habitat, listed species	P	D
	20	-2		30	-1
	S	E		S	E
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Establish a data exchange format <i>transfer standards</i> <i>Q & A report</i>	P	D	Water quality data, multi-jurisdictional bodies <i>1.5</i> <i>to</i>	P	D
	100	+4			
	S	E		S	E
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Population projection and estimates for County and areas <i>to 1.10</i>	P	D	Recreation, Parks & Beaches demographics vacant land availability Inventory and private (marinas)	P	D
				20	-2
	S	E		S	E
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Current land use files for various uses with compatible codes (environmental areas) <i>to 1.3</i>	P	D	Law Enforcement & Jails demographics road maps pop growth	P	D
				20	-2
	S	E		S	E
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Base parcel maps for land-use and transportation studies <i>and other uses</i> <i>diff scales</i>	P	D	Community Development affordable housing economic development business development <i>sales tax</i> <i>revenue sources</i> <i>vital statistics</i>	P	D
	30	-1		30	-3
	S	E		S	E

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Water supply	P	D	Flood Control	P	D
pop growth			Infrastructure		
groundwater character	20	+8	water quality	20	-2
surface water	S	E	drainage	S	E
infrastructure					
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Air Quality	P	D		P	D
pop growth					
traffic projection	80	+8			
monitoring info	S	E		S	E
pollution info					
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Hurricane Preparedness	P	D		P	D
evacuation planning					
recovery planning	100	+8			
	S	E		S	E
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water Quality	P	D		P	D
fresh					
salt					
groundwater	S	E		S	E
groundwater					
to 1.1					
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Traffic Congestion Re-	P	D		P	D
duction - infrastructure					
	20	+4			
	S	E		S	E

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
and water quality (AW)	P	D	Census tract data collection (+10)	P	D
	100	+8			
	S	E		S	E
	8	2			
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Effects of a polluting industrial facility	P	D	Overlap of services Reduce duplication between EPC and other organizations	P	D
	60	+4		50	+4
	S	E		S	E
	4	1		4	4
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Landuse, zoning and redevelopment	P	D	Real Estate / Govt Agencies Housing Authority Data	P	D
	70	+4		30	+1
	S	E	Collection and accessibility of data	S	E
	4	4		1	1
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water quality/eutrophication and effects on living resources	P	D	Street Mapping Methodology need for standard STANDARD ADDRESSING	P	D
	70	+4		70	+8
	S	E		S	E
	4	2/1		4	2
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Evaluate effect of intervention on cocaine babies	P	D	Population Statistics and projection should be standardized	P	D
	10	2		30	+2
	S	E		S	E
	2	1		2	1

POLICY/ISSUE	No. 1	POLICY/ISSUE	No. 6
Create a GIS buffer encompassing common boundaries between agencies	P D 50 + 2 S E 2 4	Identify environmental resources by <u>sensitivity level</u> - points / <u>critical mass</u> / <u>endangered species</u> P D 40 100 + 2 S E 2 2	
POLICY/ISSUE	No. 2	POLICY/ISSUE	No. 7
Establish a data exchange format / <u>TRANSFER STANDARDS</u> /	P D 80 + 4 S E 4 4	Water quality data - multi-jurisdictional bodies P D S E	
POLICY/ISSUE	No. 3	POLICY/ISSUE	No. 8
Population projection and estimates for County and subareas	P D S E	Recreation, Parks & Beaches demographics vacant land availability Inventory P D 50 + 2 S E 2 2	
POLICY/ISSUE	No. 4	POLICY/ISSUE	No. 9
Current landuse files for various uses with compatible codes (environmental areas)	P D S E	Law Enforcement & Jails demographics road maps pop growth P D 30 + 1 S E 2 1	
POLICY/ISSUE	No. 5	POLICY/ISSUE	No. 10
Base parcel maps for land-use and transportation studies / <u>SCALING</u>	P D 40 20 2 S E 2 2	Community Development affordable housing economic development business development P D 30 + 2 S E 2 1	

POLICY/ISSUE		No. 1		POLICY/ISSUE		No. 6	
water supply pop growth groundwater character surface water infrastructure	P	D	Flood Control / DRAINAGE	P	D		
	100	+8		100	+8		
	S	E		S	E		
	8	2		8	2		
POLICY/ISSUE		No. 2		POLICY/ISSUE		No. 7	
Air Quality pop growth traffic projection monitoring info pollution info	P	D		P	D		
	30	+4					
	S	E		S	E		
	4	1					
POLICY/ISSUE		No. 3		POLICY/ISSUE		No. 8	
Hurricane Preparedness evacuation planning recovery planning	P	D		P	D		
	40	+8					
	S	E		S	E		
	2	1					
POLICY/ISSUE		No. 4		POLICY/ISSUE		No. 9	
Water Quality fresh salt groundwater	P	D		P	D		
	S	E		S	E		
POLICY/ISSUE		No. 5		POLICY/ISSUE		No. 10	
Traffic Congestion Re- duction - infrastructure	P	D		P	D		
	30	+1					
	S	E		S	E		
	2	1					

POLICY/ISSUE		No. 1		POLICY/ISSUE		No. 6	
Ground water quality	P	D	Census tract data collection	P	D		
	75	4					
	S	E		S	E		
	4	8					
POLICY/ISSUE		No. 2		POLICY/ISSUE		No. 7	
Effects of a polluting industrial facility <i>Flood Control/Damage</i>	P	D	Overlap of services Reduce duplication between EPC and other organizations	P	D		
	50	4		75	4		
	S	E		S	E		
	4	4		4	1		
POLICY/ISSUE		No. 3		POLICY/ISSUE		No. 8	
Landuse, zoning and redvelopment	P	D	Real Estate / Govt Agencies Housing Authority Data Collection and accesibil- ity of data	P	D		
	75	4		75	8		
	S	E		S	E		
	4	2		8	1		
POLICY/ISSUE		No. 4		POLICY/ISSUE		No. 9	
Water quality/eutrophi- cation and effects on living resources	P	D	Street Mapping Methodology need for standard <i>Addressing</i>	P	D		
	75	2		75	4		
	S	E		S	E		
	2	1		4	1		
POLICY/ISSUE		No. 5		POLICY/ISSUE		No. 10	
Evaluate effect of inter- vention on cocaine babies	P	D	Population Statistics and projection should be standardized	P	D		
	50	8		100	4		
	S	E		S	E		
	8	1		4	1		

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Create a GIS buffer encompassing common boundaries between agencies	P	D	Identify environmental resources by sensitivity level —	P	D
	50	2		40	1
	S	E		S	E
	2	1		4	1
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Establish a data exchange format	P	D	Water quality data - multi-jurisdictional bodies	P	D
	100	4			
	S	E		S	E
	8	1			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Population projection and estimates for County and subareas	P	D	Recreation, Parks & Beaches	P	D
			demographics	30	1
	S	E	vacant land availability	S	E
			Inventory	2	1
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Current landuse files for various uses with compatible codes (environmental areas)	P	D	Law Enforcement & Jails	P	D
			demographics	80	8
	S	E	road maps	S	E
			pop growth	4	2
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Base parcel maps for land-use and transportation studies	P	D	Community Development	P	D
	80	4	affordable housing	90	8
	S	E	economic development	S	E
	4	4	business development	8	2

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Water supply	P	D	Flood Control	P	D
pop growth					
groundwater character	20	1		50	1
surface water					
infrastructure	S	E		S	E
	2	1		4	1
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Air Quality	P	D		P	D
pop growth					
traffic projection	20	2			
monitoring info					
pollution info	S	E		S	E
	4	1			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Hurricane Preparedness	P	D		P	D
evacuation planning					
recovery planning	30	2			
	S	E		S	E
	4	2			
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water Quality	P	D		P	D
fresh					
salt					
groundwater	S	E		S	E
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Traffic Congestion Re-	P	D		P	D
duction - infrastructure					
	50	2			
	S	E		S	E
	2	1			

DELPHI - PHASE

POLICY EVALUATION FORM

Page 3

Institution Juan Carrizo, E.P.C. Group#

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Water supply	P	D	Flood Control / Drainage	P	D
pop growth					
groundwater character	90	4		100	8
surface water	S	E		S	E
infrastructure	4	4		8	8
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Air Quality	P	D		P	D
pop growth					
traffic projection	100	8			
monitoring info	S	E		S	E
pollution info	8	8			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Hurricane Preparedness	P	D		P	D
evacuation planning					
recovery planning	50	2			
	S	E		S	E
	2	2			
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water Quality	P	D		P	D
fresh					
salt					
groundwater	S	E		S	E
included in 1.10					
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Traffic Congestion Reduction - infrastructure	P	D		P	D
	0	1			
	S	E		S	E
	1	1			

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POLICY EVALUATION FORM

Page 2

Institution Juan Carrizo E.P.C. Group#

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Create a GIS buffer encompassing common boundaries between agencies	P	D	Identify environmental resources by sensitivity level	P	D
	10	4			
	S	E		S	E
	4	4			
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Establish a data exchange format	P	D	Water quality data - multi-jurisdictional bodies	P	D
	40	3			
	S	E		S	E
	4	2			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Population projection and estimates for County and subareas	P	D	Recreation, Parks & Beaches	P	D
			demographics		
	S	E	vacant land availability	S	E
			Inventory		
<i>included in 1.10</i>			<i>include</i>		
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Current landuse files for various uses with compatible codes (environmental areas)	P	D	Law Enforcement & Jails	P	D
			demographics		
	S	E	road maps	S	E
			pop growth		
<i>included in 1.3</i>					
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Base parcel maps for land-use and transportation studies and other uses.	P	D	Community Development	P	D
	80	4	affordable housing	50	2
	S	E	economic development	S	E
	2	2	business development	2	2

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POLICY EVALUATION FORM

Page 1

Institution

Juan Carrizosa

E.P.C

Group#

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Water water quality include it in Policy 12.7 include 3.4	P	D	Census tract data collection include it in Policy 12.7	P	D
	100	8			
	S	E		S	E
	8	8			
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Effects of a polluting industrial facility	P	D	Overlap of services Reduce duplication between EPC and other organizations local governments	P	D
	100	8		100	8
	S	E		S	E
	8	8		8	8
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Landuse, zoning and redevelopment (chemical spill sensitivity)	P	D	Real Estate / Govt Agencies Housing Authority Data	P	D
	90	4	Collection and accessibility of data	5	2
	S	E		S	E
	4	4		2	2
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water quality/eutrophication and effects on living resources	P	D	Street Mapping Methodology need for standard	P	D
	100	8		0	1
	S	E		S	E
	8	8		1	1
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Evaluate effect of intervention on cocaine babies	P	D	Population Statistics and projection should be standardized	P	D
	0	1		0	1
	S	E		S	E
				1	1

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POLICY EVALUATION FORM

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Group# _____

POLICY/ISSUE	No. 1	POLICY/ISSUE	No. 6
Water supply	P D	Flood Control	P D
pop growth			
groundwater character	100 4		
surface water	S E		S E
infrastructure	4 4		
POLICY/ISSUE	No. 2	POLICY/ISSUE	No. 7
Air Quality	P D		P D
pop growth			
traffic projection	60 3		
monitoring info	S E		S E
pollution info			
REFER TO DON MOORES SURVEY	2 3		
POLICY/ISSUE	No. 3	POLICY/ISSUE	No. 8
Hurricane Preparedness	P D		P D
evacuation planning			
recovery planning	100 4		
	S E		S E
	4 3		
POLICY/ISSUE	No. 4	POLICY/ISSUE	No. 9
Water Quality	P D		P D
fresh			
salt			
groundwater	S E		S E
POLICY/ISSUE	No. 5	POLICY/ISSUE	No. 10
Traffic Congestion Re-	P D		P D
duction - infrastructure			
	70 3		
	S E		S E
	4 3		

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POLICY EVALUATION FORM

Page 2

Institution _____

Group _____

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Create a GIS buffer encompassing common boundaries between agencies	P	D	Identify environmental resources by sensitivity level <i>DEFER TO CON MOORE'S SURVEY</i>	P	D
	60	3			
	8	E		8	E
	3	2			
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Establish a data exchange format	P	D	Water quality data - multi-jurisdictional bodies	P	D
	80	3			
	8	E		8	E
	3	2			
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Population projection and estimates for County and subareas	P	D	Recreation, Parks & Beaches demographics vacant land availability Inventory	P	D
				70	3
	8	E		8	E
				3	2
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Current landuse files for various uses with compatible codes (environmental areas)	P	D	Law Enforcement & Jails demographics road maps pop growth	P	D
				30	2
	8	E		8	E
				2	1
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Base parcel maps for land-use and transportation studies	P	D	Community Development affordable housing economic development business development	P	D
	100	4		90	4
	8	E		8	E
	4	3		4	3

DELPHI - PHASE **Don Loop**
POLICY EVALUATION FORM Page 1

Institution **PINEHILLS COUNTY** Group# **65**

POLICY/ISSUE	No. 1		POLICY/ISSUE	No. 6	
Water water quality	P	D	Census tract data collection	P	D
	80	8			
REFER TO DON MOORES SURVEY	S	E		S	E
	8	8			
POLICY/ISSUE	No. 2		POLICY/ISSUE	No. 7	
Effects of a polluting industrial facility	P	D	Overlap of services Reduce duplication between EPC and other organizations	P	D
	50	2			
REFER TO DON MOORES SURVEY	S	E		S	E
	2	8		4	2
POLICY/ISSUE	No. 3		POLICY/ISSUE	No. 8	
Landuse, zoning and redevelopment	P	D	Real Estate / Govt Agencies Housing Authority Data Collection and accessibility of data	P	D
	100	8		20	1
	S	E		S	E
	8	8		1	2
POLICY/ISSUE	No. 4		POLICY/ISSUE	No. 9	
Water quality/eutrophication and effects on living resources	P	D	Street Mapping Methodology need for standard	P	D
	50	2			
REFER TO DON MOORES SURVEY	S	E		S	E
	2	4		4	2
POLICY/ISSUE	No. 5		POLICY/ISSUE	No. 10	
Evaluate effect of intervention on cocaine babies	P	D	Population Statistics and projection should be standardized	P	D
	0	1		100	4
	S	E		S	E
	1	2		4	3

Institution _____ Group# _____

POLICY/ISSUE		No. 1		POLICY/ISSUE		No. 6			
Create a GIS buffer encompassing common boundaries between agencies	P	D	60	+1	Identify environmental resources by sensitivity level Critical habitat, Endangered species	P	D		
	S	E				90	+4	S	E
						4	2		
POLICY/ISSUE		No. 2		POLICY/ISSUE		No. 7			
Establish a data exchange format	P	D	90	+4	Water quality data - multi-jurisdictional bodies	P	D		
	S	E						S	E
POLICY/ISSUE		No. 3		POLICY/ISSUE		No. 8			
Population projection and estimates for County and subareas	P	D			Recreation, Parks & Beaches demographics vacant land availability Inventory	P	D		
	S	E				55	+2	S	E
						4	2		
POLICY/ISSUE		No. 4		POLICY/ISSUE		No. 9			
Current landuse files for various uses with compatible codes (environmental areas)	P	D			Law Enforcement & Jails demographics road maps pop growth	P	D		
	S	E				90	+4	S	E
						4	2		
POLICY/ISSUE		No. 5		POLICY/ISSUE		No. 10			
Base parcel maps for land use and transportation studies and other uses.	P	D	100	+4	Community Development affordable housing economic development business development	P	D		
	S	E				50	+4	S	E
						8	2		
						2	8		

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POLICY EVALUATION FORM

Page 3

Institution _____

Group# _____

POLICY/ISSUE		No. 1		POLICY/ISSUE		No. 6	
Water supply pop growth groundwater character surface water infrastructure	P	D	100	+8	Flood Control / Drainage	P	D
	S	E				S	E
	8	2				4	2
POLICY/ISSUE		No. 2		POLICY/ISSUE		No. 7	
Air Quality pop growth traffic projection monitoring info pollution info	P	D	60	+2		P	D
	S	E				S	E
	4	1					
POLICY/ISSUE		No. 3		POLICY/ISSUE		No. 8	
Hurricane Preparedness evacuation planning recovery planning	P	D	100	+4		P	D
	S	E				S	E
	4	4					
POLICY/ISSUE		No. 4		POLICY/ISSUE		No. 9	
Water Quality ① fresh salt groundwater X	P	D				P	D
	S	E				S	E
POLICY/ISSUE		No. 5		POLICY/ISSUE		No. 10	
Traffic Congestion Re- duction - infrastructure	P	D				P	D
	S	E				S	E

APPENDIX 4

FUTURE TECHNIQUES

CROSS - IMPACT ANALYSIS PHASE

BASIC INSTRUCTIONS

1. OBJECTIVE

The main objective of this phase is to determine the impact which a policy/ issue (once it is addressed or implemented) may have over the probability that other issues would be addressed.

2. FORMAT

The Cross-Impact Analysis requires a matrix format which displays the ten issues that reached the highest impact score and the ten that received the lowest impact score during the Delphi phase evaluation. The matrix has been drawn to display:

- The ten policies/issues which have the highest impact score form the rows titles.
- The ten policies/issues which have the lowest impact score form the columns titles.

The Cross-Impact Analysis will be conducted in small groups; each group will complete the matrix using those instructions which have been outlined in Item 3. All groups will then return every matrix to the operator. The results of this analysis will represent the consensus views and opinions of each group after discussion has taken place.

3. PROCEDURE FOR COMPLETING THE CROSS-IMPACT ANALYSIS MATRIX

Each matrix will be interpreted under the following terms:

- a. Each of the ten (10) policies/issues lined up as row titles are assumed to have been addressed and/or implemented.
- b. Each of the (10) policies/issues listed as column titles may be affected as a result of having implemented/ addressed those policies and issues listed as row titles.

Going through the matrix, and assuming that each of the policies/issues listed on the rows have been addressed, please indicate:

- c. With a check mark in the appropriate cell, which of the policies/ issues listed on the columns may be affected; namely if the probability of addressing such policy/issue will or will not change.

- d. Consider those cells you have checked and now decide if the effect would be an increase or decrease in the probability of the issue being addressed.

Replace the check mark by a positive (+) or a negative (-) sign:

+ = increases the probability of issue being addressed

- = decreases the probability of issue being addressed

- e. A careful review of the matrix will show on its right hand side under the label "TOTAL A" the impact scores assigned to each policy/issue during the Delphi phase. You are now expected to distribute and assign these impact scores for each policy/issue on the cells you have marked with either a (+) or a (-) sign. This impact score distribution will reflect your own view as to how each policy/issue would be impacted on its probability of being addressed.

For example: if a policy/issue listed as a row title has an impact score of 80 points and you decide to assign 20 points of this impact score to another issue listed as column title, it only indicates that in your own view 1/4 (25%) of the total impact would be over such policy/issue.

- f. Please be sure to total all impact scores for rows and columns:
- Under the heading "TOTAL A", please add up all impact scores without taking into account the sign.
 - Under the heading "TOTAL B", please add up all impact scores taking into account the sign.

ISSUE AFFECTED	ISSUE ADDRESSED											T O T A L - A
	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity level e.g. oil spill, habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure	Standard population projections and statistics	Vacant land inventory for parks & recreation provision to meet present needs	High crime areas etc. - statistics to determine law enforcement needs	Local govt. real estate statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development		
Water supply: infrastructure to meet population growth: surface/ground water charac.	+120	0	0	0	0	+164	0	0	0	0		284
Flood control: effects on land use area, drainage and erosion.	100	50	0	0	0	0	+50	0	10	0		278
Water quality: eutrophication and its impact on living resources.	+120	0	+100	0	0	0	0	0	0	0		276
Standard street mapping methodology: compatible names & addresses in counties	+150	+50	0	0	0	0	0	0	0	0		245
Water quality general data standardized to be shared by multi-jurisdictions.	-75	-20	+20	0	0	30	+15	0	0	0		162
To establish a data exchange standard format: data dictionary/q. & a. reports.	0	+100	0	0	0	0	0	0	0	0		159
Procedures in: hurricane preparedness, evacuation and recovery planning.	30	20	0	0	40	40	0	+10	0	+10		150
Effect of land use, zoning and redevelopment on the habitat and eco-system.	70	0	41	15	10	0	5	0	0	0		141
Effects of polluting industrial facilities on human health, solid waste etc	31	20	0	50	30	0	0	0	0	0		131
Overlap/duplicate services between EPC, State & County regulations e.g. permits.												0
T O T A L - B	1696	260	150	65	80	234	70	10	10	10		128

Institution: _____

Date: _____

Group No. _____

CROSS-IMPACT
ANALYSIS
MATRIX

<div> <div>ISSUE AFFECTED</div> <div>ISSUE ADDRESSED</div> </div>		Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity (e.g. oil spill, habitat)	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure	Standard population projections and statistics	Vacant land inventory for parks & recreation projects on to meet present needs.	High crime areas etc. - studies to determine law enforcement needs	Local govt. real state statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development	TOTAL - A
1	Water supply infrastructure to meet population growth: surface/ground water charac.	25 ⁺ 71	5 ⁺ 14.2	50 142	0	0	5 ⁺ 14.2	5 ⁺ 14.2	0	0	0	100 284
2	Flood control: effects on land use area, drainage and erosion.	30 27.8	30 ⁺ 84	50 139	0	0	0	0	0	0	10 ⁺ 27.8	100 278
3	Water quality: eutrophication and its impact on living resources.	10 ⁺ 27.6	25 ⁺ 70	50 140	0	0	0	0	0	0	10 ⁺ 27.6	100 276
4	Standard street mapping methodology: compatible names & addresses in counties	30 75	✓	0	5 12.3	30 75	5 12.3	0	0	70 24.5	5 12.3	100 245
5	Water quality general data standardized to be shared by multi-jurisdictions.	10 16.2	20 32.4	30 48.6	0	0	0	0	0	0	0	60 162
6	To establish a data exchange standard format: data dictionary/q. & a. reports.	20 15.9	10 ⁺ 15.9	10 ⁺ 15.9	10 15.9	10 15.9	10 15.9	10 15.9	10 15.9	10 15.9	10 15.9	100 159
7	Procedures in: hurricane preparedness, evacuation and recovery planning.	10 15	10 ⁺ 15	0	0 7.5	10 7.5	5 7.5	0	0	5 7.5	5 7.5	85 150
8	Effect of land use, zoning and redevelopment on the habitat and eco-system.	15 21.2	10 ⁺ 14.1	50 70.5	0	0	0	5 7	0	✓	5 7	85 141
9	Effects of polluting industrial facilities on human health, solid waste etc	5 6.55	10 13.1	10 13.1	30 78.6	0	0	20 20.7	0	5 6.55	5 6.55	85 131
10	Overlap/duplicate services between EPC, State & County regulations e.g. permits.	10 12.8	25 31.6	30 37.8	30 37.8	0	0	0	0	0	0	105 128
TOTAL - B		140	145	280	75	70	25	40	10	30	40	

Institution: E.P.C.

Date: 2/19/92

Group No. _____

San Joaquin

CROSS-IMPACT
ANALYSIS
MATRIX

12.2
12.2

<div> <div>ISSUE AFFECTED</div> <div>ISSUE ADDRESSED</div> </div>	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity levels e.g. oil spill, habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure.	Standard population projections and statistics	Vacant land inventory for parks & recreation provides on to meet present needs.	High crime areas etc. - statistics to determine law enforcement needs	Local govt. real state statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development	TOTAL - A
Water supply: infrastructure to meet population growth: surface/ground water charac.	0 1	75 +	25 +	0 1	0 1	100 +	20 +	0 1	10 +	10 +	245 284
Flood control: effects on land use area, drainage and erosion.	10 +	50 +	2 1	10 1	10 1	10 1	50 +	10 1	10 1	10 1	110 278
Water quality: eutrophication and its impact on living resources.	10 1	10 1	100 +	70 +	20 1	20 1	40 +	10 1	10 1	10 1	274 276
Standard street mapping methodology: compatible names & addresses in counties	50% + 120	10% + 25	0 1	10 1	10 1	10 1	23 + 5	10 1	10 1	50 + 12	162 245
Water quality general data standardized to be shared by multi-jurisdictions.	0 1	10% + 16	20% + 32	0 1	10 1	10 1	0 1	0 1	0 1	0 1	48 162
To establish a data exchange standard format: data dictionary/q. & a. reports.	20% + 32	15% + 24	10% + 16	10% + 16	0 1	10% + 16	10% + 16	0 1	10% + 16	10% + 16	15 159
Procedures in: hurricanes preparedness, evacuation and recovery planning.	40% + 60	10% + 15	10% + 15	10% + 15	20% + 30	10% + 15	10% + 15	10% + 15	10% + 15	10% + 15	135 150
Effect of land use, zoning and redevelopment on the habitat and eco-system.	20% + 23	10% + 14	15% + 21	10% + 13	10% + 13	50% + 7	50% + 7	10% + 13	10% + 13	10% + 13	87 141
Effects of polluting industrial facilities on human health, solid waste etc	20% + 66	50% + 7	30% + 39	10% + 13	10% + 13	10% + 13	10% + 13	10% + 13	10% + 13	10% + 13	93 131
Overlap/duplicate services between EPC, State & County regulations e.g. permits.	10% + 25	10% + 25	10% + 25	10% + 25	10% + 25	10% + 25	10% + 25	10% + 25	10% + 25	10% + 25	25 128
TOTAL - B	246	236	243	39	50	171	192	0	26	38	

Institution: _____

Date: _____

Group No. _____

CROSS-IMPACT
ANALYSIS
MATRIX

ISSUE AFFECTED	ISSUE ADDRESSED										T O T A L - A
	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity level e.g. oil spill, habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure	Standardize population projections and statistics	Vacant land inventory for parks & recreation projects on to meet present needs	High crime areas etc. - tactics to determine law enforcement needs	Local govt. real estate statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development	
Water supply infrastructure to meet population growth: surface/ground water charac.	- .05 14	+ .4 113	+ .2 56	0	0	+ .1 35	0	0	+ .2 14	+ .2 56	284
Flood control: effects on land use area, drainage and erosion.	+ .1 27	+ .2 54	+ 2 54	0	+ 3 71	0	0	0	0	+ 1 87	278
Water quality: eutrophication and its impact on living resources.	0	+	+	+	0	0	+	0	0	0	276
Standard street mapping methodology: compatible names & addresses in counties	+	+ .2 10	0	0	+ .15 37	0	0	+	0	+	245
Water quality general data standardized to be shared by multi-jurisdictions.	0	+	0	0	0	+	0	0	0	+	162
To establish a data exchange standard format: data dictionary/q. & a. reports.	+	+	+	+	+	+	+	+	+	+	159
Procedures in: hurricanes preparedness, evacuation and recovery planning.	+	+	0	0	+	0	0	0	0	+	150
Effect of land use, zoning and redevelopment on the habitat and eco-system.	+	+	+	+	0	+	+	0	0	+	141
Effects of polluting industrial facilities on human health, solid waste etc	0	+	+	+	0	0	0	0	0	+	131
Overlap/duplicate services between EPC, State & County regulations e.g. permits.	0	+	0	+	0	0	+	0	0	+	128
T O T A L - B	102	472	316	125	184	114	88	154	30	236	

Institution: SWF WMD

Date: 2/18/92

Group No. _____

CROSS-IMPACT
ANALYSIS
MATRIX

<div>ISSUE AFFECTED</div> <div>ISSUE ADDRESSED</div>	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity level eg. oil spill, habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure.	Standard population projections and statistics	Vacant land inventory for parks & recreation provision to meet present needs.	High crime areas etc. - statistics to determine law enforcement needs	Local govt. real estate statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development	TOTAL
Water supply infrastructure to meet population growth: surface/ground water charac.	✓ 25	✓ 50	✓ 50	✓ 25		✓ 50	✓ 25			✓ 50	275 284
Flood control: effects on land use area, drainage and erosion.		✓ 50	50	25		50	50				278
Water quality: eutrophication and its impact on living resources.		75	100	50			50				276
Standard street mapping methodology: compatible names & addresses in counties					25		25	75	25	75	245
Water quality general data standardized to be shared by multi-jurisdictions.	✓ 25	50	50	25							162
To establish a data exchange standard format: data dictionary/q. & a. reports.	15	15	15	15	15	15	15	15	15	15	159
Procedures in: hurricane preparedness, evacuation and recovery planning.	25	25			50	25				25	150
Effect of land use, zoning and redevelopment on the habitat and eco-system.	50	25	40	10		15					141
Effects of polluting industrial facilities on human health, solid waste etc		25		15		15		25		50	131
Overlap/duplicate services between EPC, State & County regulations e.g. permits.	25	25						25	25	25	128
TOTAL - 8	145	340	265	140	90	155	165	140	65	240	

Institution: HES

Date: 2/19/92

Group No. _____

**CROSS-IMPACT
ANALYSIS
MATRIX**

ISSUE AFFECTED	ISSUE ADDRESSED										T O T A L
	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity level e.g. oil spill, habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure.	Standard population projections and statistics	Vacant land inventory for parks & recreation provides on to meet present needs.	High crime areas etc. - tactics to determine law enforcement needs	Local govt. real estate statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development	
Water supply infrastructure to meet population growth: surface/ground water charac.	50	20	20	0	0	100	0	0	10	94	274
Flood control: effects on land use area, drainage and erosion.	100	50	40	5	30	25	0	5	0	30	278
Water quality: eutrophication and its impact on living resources.	40	5	100	76	10	10	30	0	0	5	276
Standard street mapping methodology: compatible names & addresses in counties	75	40	0	10	100	0	0	0	5	15	245
Water quality general data standardized to be shared by multi-jurisdictions.	10	5	75	40	0	5	17	0	0	10	162
To establish a data exchange standard format: data dictionary/q. & a. reports.	15	30	30	15	10	30	10	1	8	10	159
Procedures in: hurricane preparedness, evacuation and recovery planning.	20	10	10	10	50	10	5	0	30	5	150
Effect of land use, zoning and redevelopment on the habitat and eco-system.	10	10	40	20	10	11	30	0	5	5	141
Effects of polluting industrial facilities on human health, solid waste etc	10	11	40	30	0	20	0	0	0	20	131
Overlap/duplicate services between EPC, State & County regulations e.g. permits.	0	20	40	40	0	10	10	0	0	0	120
T O T A L - B	310	182	395	241	190	224	72	1	48	174	

Institution: SWFWMD

Date: 2/19/92

Group No. _____

CROSS-IMPACT
ANALYSIS
MATRIX

ISSUE AFFECTED	ISSUE ADDRESSED										TOTAL - A
	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity level e.g. oil spill, habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure	Standard population projections and statistics	Vacant land inventory for parks & recreation provision to meet present needs	High crime areas etc - statistics to determine law enforcement needs	Local govt. real state statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development	
Water supply: infrastructure to meet population growth: surface/ground water character	20	10	10	10	10	10	10	10	10	10	20
Flood control: effects on land use area, drainage and erosion.	20	10	10	10	10	10	10	10	10	10	20
Water quality: eutrophication and its impact on living resources.	20	10	10	10	10	10	10	10	10	10	20
Standard street mapping methodology: compatible names & addresses in counties	20	10	10	10	10	10	10	10	10	10	20
Water quality general data standardized to be shared by multi-jurisdictions.	20	10	10	10	10	10	10	10	10	10	20
To establish a data exchange standard format: data dictionary/q. & a. reports	20	10	10	10	10	10	10	10	10	10	20
Procedures in: hurricane preparedness, evacuation and recovery planning.	20	10	10	10	10	10	10	10	10	10	20
Effect of land use, zoning and redevelopment on the habitat and eco-system.	20	10	10	10	10	10	10	10	10	10	20
Effects of polluting industrial facilities on human health, solid waste etc	20	10	10	10	10	10	10	10	10	10	20
Overlap/duplicate services between EPC, State & County regulations e.g. permits.	20	10	10	10	10	10	10	10	10	10	20
TOTAL - B	375	136	410	70	-20	450	260	790	55	155	128

Institution: MANATEE COUNTY

Date: 2/19/92

Group No. _____

CROSS-IMPACT
ANALYSIS
MATRIX

<div>ISSUE AFFECTED</div> <div>ISSUE ADDRESSED</div>	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity level e.g. oil spill, habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure.	Standard population projections and statistics	Vacant land inventory for parks & recreation provision to meet present needs.	High crime areas etc - statistics to determine law enforcement needs	Local govt. real estate statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development	TOTAL - A
Water supply- infrastructure to meet population growth: surface/ground water charac.	10 +28	10 +28	2 +5	2 +5	5 +14	20 +56	0	0	16 +42	10 +28	206 284
Flood control: effects on land use area, drainage and erosion.	10 +28	20 +56	20 +56	0	0	5 +14	15 +42	0	0	10 +28	234 278
Water quality: eutrophication and its impact on living resources.	0	10 +28	20 +56	2 +5	0	5 +14	15 +42	0	0	5 +14	159 276
Standard street mapping methodology: compatible names & addresses in counties	10 +24	5 +12	0	0	5 +12	0	0	0	10 +24	0	159 245
Water quality general data standardized to be shared by multi-jurisdictions.	0	10 +16	20 +32	0	0	2 +2	0	0	0	0	50 162
To establish a data exchange standard format: data dictionary/g. & o. reports.	0	50 +80	0	2 +3	0	0	0	0	0	0	83 159
Procedures in: hurricane preparedness, evacuation and recovery planning.	5 +8	5 +8	0	0	5 +8	20 +30	0	5 +8	10 +15	10 +15	164 150
Effect of land use, zoning and redevelopment on the habitat and eco-system.	30 +42	0	30 +42	5 +7	2 +3	10 +14	10 +14	0	0	10 +14	52 141
Effects of polluting industrial facilities on human health, solid waste etc	20 25	0	5 +7	+	0	0	2 +3	0	0	10 +13	49 131
Overlap/duplicate services between EPC, State & County regulations e.g. permits.	40 +52	50 +65	0	0	0	0	0	0	0	0	117 128
TOTAL - B	152 208	293	198	20	37	130	99	8	81	112	

Institution: PIN CNTY PVB WKS

Date: 2-19-92

Group No. _____

CROSS-IMPACT
ANALYSIS
MATRIX

<div> <div>ISSUE AFFECTED</div> <div>ISSUE ADDRESSED</div> </div>	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity levels e.g. oil spill, habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure.	Standard population projections and statistics	Vacant land inventory for parks & recreation provision to meet present needs.	High crime areas etc. - tactics to determine law enforcement needs	Local govt. real estate statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development	TOTAL - A
WATER											
Water supply infrastructure to meet population growth: surface/ground water character.	71	51	20	0	0	142	0	0	0	0	284
Flood control: effects on land use area, drainage and erosion.	125	75	20	0	0	35	0	0	10	10	265
Water quality: eutrophication and its impact on living resources.	100	70	36	0	0	10	0	0	0	0	276
Standard street mapping methodology: compatible names & addresses in counties	123	122	0	0	0	0	0	0	0	0	245
Water quality general data standardized to be shared by multi-jurisdictions.	60	21	60	0	0	21	0	0	0	0	162
To establish a data exchange standard format: data dictionary/g. & a. reports.	100	0	0	0	0	0	0	0	59	0	159
Procedures in: hurricane preparedness, evacuation and recovery planning.	0	0	0	0	100	25	0	0	25	0	150
Effect of land use, zoning and redevelopment on the habitat and eco-system.	50	5	0	0	0	23	0	0	23	40	141
Effects of polluting industrial facilities on human health, solid waste etc	0	0	0	100	0	30	0	0	0	1	131
Overlap/duplicate services between EPC, State & County regulations e.g. permits.								0			128
TOTAL - B	623	344	136	100	100	286	0	0	107	51	

Institution: _____

Date: _____

Group No. _____

**CROSS-IMPACT
ANALYSIS
MATRIX**

ISSUE AFFECTED		ISSUE ADDRESSED										TOTAL - A	
		Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity level e.g. oil spill, habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure	Standard population projections and statistics	Vacant land inventory for parks & recreation provision to meet present needs	High crime areas statistics to determine law enforcement needs	Local govt. real estate statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development		
Water supply- infrastructure to meet population growth: surface/ground water charac.		0	+ 35	+	- 20	- 240	+ 80	+	20	- 30	- 35	+ 40	250 284
Flood control: effects on land use area, drainage and erosion.		+ 25	+ 42	+	- 0	+ 14	+	14	56	- 14	- 14	+ 28	235 278
Water quality: eutrophication and its impact on living resources.		0	+ 60	+	160	0	0	0	+ 25	0	0	+ 25	270 276
Standard street mapping methodology: compatible names & addresses in counties		+ 20	+ 15	0	0	+ 35	0	0	0	+ 10	0	0	70 245
Water quality general data standardized to be shared by multi-jurisdictions.		0	+ 41	+	41	0	0	0	+ 41	0	0	+ 16	162 162
To establish a data exchange standard format: data dictionary/q. & a. reports.		+ 16	+	16	16	16	16	16	16	16	15	16	159 159
Procedures in: hurricane preparedness, evacuation and recovery planning.		+ 15	+	40	0	0	+ 30	+	30	15	0	0	15 150
Effect of land use, zoning and redevelopment on the habitat and eco-system.		+ 14	+	21	21	7	0	+	14	7	0	7	21 141
Effects of polluting industrial facilities on human health, solid waste etc		+ 13	+	13	7	32	0	+	32	0	0	0	13 131
Overlap/duplicate services between EPC, State & County regulations e.g. permits.		0	0	+	13	12	12	+	12	12	13	12	104 128
TOTAL - B		106	283	226	87	115	179	193	23	24	187		

Institution: TERPC

Date: 2/19/92

Group No. _____

CROSS-IMPACT
ANALYSIS
MATRIX

ISSUE AFFECTED	ISSUE ADDRESSED										T O T A L - A
	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity level e.g. oil spill habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure.	Standard population projections and statistics	Vacant land inventory for parks & recreation provision to meet present needs.	High crime areas etc. - statistics to determine law enforcement needs	Local govt., real estate statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development	
Water supply infrastructure to meet population growth: surface/ground water charac.	0	0	-71	+0	+42	+14	-71	+42	+14	+14	284
Flood control: effects on land use area, drainage and erosion.	0	0	-19	0	0	+68	0	0	+35	+42	278
Water quality: eutrophication and its impact on living resources.	0	0	+38	0	0	0	-2	0	68	-18	276
Standard street mapping methodology: compatible names & addresses in counties	+82	+5	+20	0	0	+82	0	+30	+25	0	245
Water quality general data standardized to be shared by multi-jurisdictions.	0	+40	+90	0	0	0	0	0	0	0	162
To establish a data exchange standard format: data dictionary/q. & a. reports.	+20	+20	+10	+10	0	+10	0	+20	+20	+20	159
Procedures in: hurricane preparedness, evacuation and recovery planning.	+15	0	0	0	+15	+20	0	0	+25	+20	150
Effect of land use, zoning and redevelopment on the habitat and eco-system.	+14	+14	+14	+14	+14	0	+14	0	+28	+28	141
Effects of polluting industrial facilities on human health, solid waste etc	+13	0	+13	+26	0	+13	0	0	+26	+26	131
Overlap/duplicate services between EPC, State & County regulations e.g. permits.	0	+12	+24	+12	0	0	0	0	0	+12	128
T O T A L - B	144	91	99	62	71	197	-58	92	105	144	

Institution: _____

Date: _____

Group No. _____

CROSS-IMPACT
ANALYSIS
MATRIX

ISSUE AFFECTED	ISSUE ADDRESSED									
	Base parcel maps for land use & transportation studies at local government level	Create a GIS buffer with common boundaries to share data between agencies	Identify environmental resources by sensitivity levels e.g. oil spill habitat	Air quality, population and traffic projections regarding pollution data	Traffic congestion reduction and road infrastructure	Standard population projections and statistics	Vacant land inventory for parks & recreation provision to meet present needs	High crime areas etc. - statistics to determine law enforcement needs	Local govt. real state statistics: housing cost & houses for sale/rent	Socio-economic indicators forecasting & regional development
✓ Water supply: infrastructure to meet population growth: surface/ground water charac.	✓ + 28	✓ + 14	✓ 0 21			✓ + 135			✓ + 85	283 284
✓ Flood control: effects on land use area, drainage and erosion.	✓ + 28	✓ + 92	✓ + 56							176 278
✓ Water quality: eutrophication and its impact on living resources.										276
✓ Standard street mapping methodology: compatible names & addresses in counties	✓ + 120	✓ + 12				✓ 0				132 245
✓ Water quality general data standardized to be shared by multi-jurisdictions.		✓ + 81	✓ + 52							133 162
✓ To establish a data exchange standard format: data dictionary/q. & a. reports.	✓ + 30	✓ + 15	✓ + 15			✓ + 78			✓ + 15	153 159
✓ Procedures in: hurricane preparedness, evacuation and recovery planning.		✓ 0 0								150
✓ Effect of land use, zoning and redevelopment on the habitat and eco-system.	✓ + 14	✓ + 45				✓ + 7			✓ + 7	73 141
✓ Effects of polluting industrial facilities on human health, solid waste etc	✓ 0 6	✓ + 52	✓ + 52							110 131
✓ Overlap/duplicate services between EPC, State & County regulations e.g. permits.			✓ + 0							0 128
TOTAL - B	226	311	✓ 196			220			107	

Institution: WCZUSA

Date: 2/19/92

Group No. _____

**CROSS-IMPACT
ANALYSIS
MATRIX**

APPENDIX 5

FUTURES TECHNIQUE

SYSTEM IMPACT ANALYSIS PHASE

BASIC INSTRUCTIONS

1. OBJECTIVE

The main objective of the system impact analysis phase is to determine the impact a specific policy/issue (once it is implemented or addressed) may have over the system itself, (in our case the Tampa Bay region).

2. FORMAT

The system impact analysis requires a NEXUS card format. This format displays along its perimeter those factors describing the system (Tampa Bay region) suggested by the sample of experts during the Brain-Storming Phase. The System Impact Analysis will be conducted in small groups; each group will evaluate one of the ten (10) most dominant issues established during the Cross Impact Analysis Phase.

Following the procedures indicated in item # 3 below, each group will complete a NEXUS card for a specific issue. The NEXUS cards will be returned and will represent each group's view point after discussion. These viewpoints represent the impact that a specific issue, once addressed, may have over the system (Tampa Bay region).

3. PROCEDURES FOR COMPLETING THE NEXUS CARD

Working only with the factors or variables listed along the perimeter of your NEXUS card and without making any notes on the cells provided, try the following:

- a. Indicate those factors that may be affected by the implementation of the policy/issue in question, placing with pencil a check mark on the adjacent cell.
- b. Review those factors you have checked and decide if the effect would be in terms of an increase or a decrease. Replace your check mark by a positive sign (+) in case it is an increase, and with a negative sign (-) in case it is a decrease.
- c. Distribute and assign the impact score to those factors marked with a positive (+) or a negative(-) sign. The resulting impact score distribution will reflect the group's viewpoint on the proportional distribution of the impact score over the affected factors. It is not necessary to assign the total impact score number. It may seem that a portion of the impact falls over factors that have not been included in the system (NEXUS card).
- d. Total the impact score assigned to all factors without taking into account the sign and then write it down on the appropriate cell.

NEXUS

1	Surface & ground water characteristics	✓ +10
2	Air quality monitoring information	
3	Traffic projections	
4	Air quality pollution sources	
5	Population projections	
6	Road maps	
7	Population growth	
8	Vacant land availability	
9	Resource consistent	
10	Land-use inventory	✓ +5
11	Road & utilities infrastructure	

30	Septic tank	✓
31	Receiving water effects on Tampa Bay	✓
32	Water demand	
33	Human health effects from water pollution	✓ 10
34	Carcinogenic effects of polluted water	
35	Air quality	✓
36	Water quality	✓ 15
37	Data dissemination on air & water quality	✓ 5
38	Traffic access and utilities	
39	Current data collection methods	
40	Regional and comprehensive planning efforts	
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 27 11

Water quality general data standardized to be shared by multi-jurisdictional bodies.

Impact Score
To Distribute

114

Impact Score
Assigned

109

	Socio-economic indicators on Family
	Topographic information
	Transportation network
	Demographic indicators
✓ 0	Storm water sources
✓ 5	General data on wells
✓ 2	Storm water impact (water quality) measurements
✓ 2	Storm water impact (flooding) measurements
✓ 10	Water & air quality regulatory agencies
	Efficient decision-making
	Standardized data collection formats
	Hazardous waste site location
	Hazardous waste effects

12	Existing land use data	✓ 10
13	Level of service data	✓ 10
14	Access transit	✓ 5
15	Water supply	✓ 10
16	Federal funding	
17	Common GIS data formats	
18	Environmental effects on habitat	✓ 10
19	Environmental effects on sensitive land	✓ 5
20	Socio-economic indicators	
21	Land use categories	✓ 10
22	Educational indicators	
23	Run off water quality	✓ 5
24	Water quality atmospheric inputs	✓ 5
25	Run off water quantity	✓ 5
26	Human vital statistics	
27	Medical records on pediatric patients	

NEXUS

1	Surface & ground water characteristics	1
2	Air quality monitoring information	2
3	Traffic projections	
4	Air quality pollution sources	3
5	Population projections	
6	Road maps	
7	Population growth	
8	Vacant land availability	
9	Resource consultant available March	
10	Land-use inventory	2
11	Road & utilities infrastructure	

58	Septic tank	
59	Receiving waters effluents on Tampa Bay	
60	Water demand	
61	Human health effects from water pollution	1/5
62	Carcinogenic effects of polluted waters	1/5
63	Air quality	1/5
64	Water quality	
65	Date dissemin- tion on air & water quality	1/2
66	Traffic census and utilities	
67	Current data collection methods	1/2
68	Regional and comprehensive planning efforts	
69		
70		
71		
72		

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 1.2

Effects of polluting industrial facilities on human health, solid waste.

Impact Score To Distribute	104	Impact Score Assigned	104
----------------------------	-----	-----------------------	-----

12	Existing land use data	1/2
13	Level of service data	
14	Area transit	
15	Water supply	1/2
16	Federal funding	
17	Common GIS data forecasts	3
18	Environmental effects on habitat	1
19	Environmental effects on sensitive land	
20	Socio-economic indicators	10
21	Land use categories	2
22	Educational indicators	
23	Run off water quality	3
24	Water quality atmospheric inputs	
25	Run off water quantity	
26	Human vital statistics	1/2
27	Medical records on pediatric patients	6

5	Socio-economic indicators on family	
1	Topographic information	
	Transportation network	
3	Demographic indicators	
	Storm water sources	
	General data on wells	
1	Storm water impact (water quality) measurements	
	Storm water impact (flooding) measurements	
3	Water & air quality regulatory agencies	
	Efficient decision-making	
1	Standardized data collection formats	
6	Hazardous waste site location	
5	Hazardous waste effects	

NEXUS

Surface & ground water characteristics	+3
Air quality monitoring information	+3
Traffic projections	0
Air quality pollution sources	+5
Population projections	+1
Road maps	0
Population growth	0
Vacant land availability	0
Resource commitment	+1
Land-use inventory	+2
Road & utilities infrastructure	0

56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
Septic tank	Receiving waters effects on Tampa Bay	Water demand	Human health effects from water pollution	Cardiac effects of polluted waters	Air quality	Water quality	Data dissemination on air & water quality	Traffic access and utilities	Current data collection methods	Regional and comprehensive planning efforts				
0	+1	0	+5	+1	+1	+0	+2	0	+1	+1				

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 1.2

Effects of polluting industrial facilities on human health, solid waste.

Impact Score To Distribute 102 X Impact Score Assigned 92

2	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Use data	Level of service data	Access transit	Water supply	Federal funding	Common GIS data formats	Environmental effects on habitat	Environmental effects on sensitive land	Socio-economic indicators	Land use categories	Educational indicators	Run off water quality	Water quality atmospheric indicators	Run off water quantity	Human vital statistics	Medical records on pediatric patients
+5	0	0	+1	+1	+5	+5	0	0	+1	0	+5	+3	+3	+5	+1

0	Socio-economic indicators on family
0	Topographic information
0	Transportation network
+1	Demographic indicators
+5	Storm water sources
+1	General data on wells
+5	Storm water impact (water quality) measurements
0	Storm water impact (flooding) measurements
+1	Water & air quality regulatory agencies
0	Efficient decision-making
+3	Standardized data collection formats
+5	Hazardous waste site location
+3	Hazardous waste effects

NEXUS

Surface & ground water characteristics	
Air quality monitoring information	8
Traffic projections	8
Air quality pollution sources	13
Population projections	
Road maps	
Population growth	
Vacant land availability	
Resource commitment	
Land-use inventory	
Road & utilities infrastructure	

50	55	54	53	52	51	50	49	48	47	46	45	44	43	42
Septic tank	Receiving waters effects on Tampa Bay	Water demand	Human health effects from water pollution	Carcinogenic effects of polluted waters	Air quality	Water quality	Data dissemination on air & water quality	Traffic access and utilities	Current data collection methods	Regional and comprehensive planning efforts				
			19	17	8	8								

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 1.2

Effects of polluting industrial facilities on human health, solid waste.

Impact Score To Distribute 104 X Impact Score Assigned 104

	Socio-economic indicators on family
	Topographic information
	Transportation network
	Demographic indicators
	Storm water sources
2	General data on wells
	Storm water impact (water quality) measurements
	Storm water impact (flooding) measurements
3	Water & air quality regulatory agencies
	Efficient decision-making
	Standardized data collection formats
8	Hazardous waste site location
6	Hazardous waste effects

2	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
use data	Level of service data	Access transit	Water supply	Federal funding	Common OIS data forecasts	Environmental effects on habitat	Environmental effects on sensitive land	Socio-economic indicators	Land use categories	Educational indicators	Run off water quality	Water quality atmospheric impacts	Run off water quantity	Human vital statistics	Medical records on pediatric patients
											7			2	

NEXUS

Surface & ground water characteristics	2 1/2
Air quality monitoring information	1
Traffic projections	5 1/2
Air quality pollution sources	1
Population projections	5 1/2
Road maps	2 1/2
Population growth	10 1/2
Recent land availability	6 1/2
Resource commitment	2 1/2
Land-use inventory	6 1/2
Road & utilities infrastructure	6 1/2

50	55	54	53	52	51	50	49	48	47	46	45	44	43	42
Septic tank	Receiving waters effluents on Tampa Bay	Water demand	Human health effects from water pollution	Contingency effects of polluted waters	Air quality	Water quality	Date dissemin- tion on air & water quality	Traffic access and utilities	Current data collection methods	Regional and comprehensive planning efforts				
1	1	1	1	1	1	1	1	1	1	1				

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 1.3

Effects of land use, zoning and redevelopment on the habitat and eco-system.

Impact Score To Distribute	107	X	Impact Score Assigned	89
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1	Socio-economic indicators on family
1	Topographic information
1	Transportation network
1	Demographic indicators
1	Storm water sources
1	General data on wells
2 1/2	Storm water impact (water quality) measurements
5 1/2	Storm water impact (flooding) measurements
2 1/2	Water & air quality regulatory agencies
1	Efficient decision-making
1	Standardized data collection formats
5 1/2	Hazardous waste site location
2 1/2	Hazardous waste effects

13	Level of service data
14	Access transit
15	Water supply
16	Federal funding
17	Common GIS data formats
18	Environmental effects on habitat
19	Environmental effects on sensitive land
20	Socio-economic indicators
21	Land use categories
22	Educational indicators
23	Run off water quality
24	Water quality atmospheric inputs
25	Run off water quantity
26	Human vital statistics
27	Medical records on pediatric patients

NEXUS

1	Surface & ground water characteristics	+3
2	Air quality monitoring information	0
3	Traffic projections	0
4	Air quality pollution sources	+1
5	Population projections	0
6	Road maps	+2
7	Population growth	0
8	Vacant land availability	+5
9	Resource constraints	+3
10	Land-use inventory	+7
11	Road & utilities infrastructure	-2

38	Septic tanks	+5
39	Receiving waters effects on Tampa Bay	5
40	Water demand	+2
41	Human health effects from water pollution	0
42	Carcinogenic effects of polluted waters	+1
43	Air quality	0
44	Water quality	+2
45	Date dissemination on air & water quality	+1
46	Traffic access and utilities	0
47	Current data collection methods	+4
48	Regional and comprehensive planning efforts	+2
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TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 1.3

Effects of land use, zoning and redevelopment on the habitat and eco-system.

Impact Score To Distribute 107 ~~X~~ Impact Score Assigned 107

0	Socio-economic indicators on family
+5	Topographic information
0	Transportation network
0	Demographics indicators
+4	Storm water sources
0	General data on wells
+4	Storm water impact (water quality) measurements
+2	Storm water impact (flooding) measurements
+2	Water & air quality regulatory agencies
+1	Efficient decision-making
+2	Standardized data collection formats
+3	Hazardous waste site location
+2	Hazardous waste effects

12	Existing land use data	0
13	Level of service data	0
14	Access transit	+1
15	Water supply	+1
16	Federal funding	-2
17	Common GIS data formats	+8
18	Environmental effects on habitat	+3
19	Environmental effects on sensitive land	0
20	Socio-economic indicators	+15
21	Land use categories	0
22	Educational indicators	+15
23	Run off water quality	0
24	Water quality atmospheric inputs	+15
25	Run off water quantity	0
26	Human vital statistics	0
27	Medical records on pediatric patients	0

NEXUS

Surface & ground water characteristics	5
Air quality monitoring information	0
Traffic projections	0
Air quality pollution sources	0
Population projections	3
Road maps	0
Population growth	3
Vacant land availability	0
Resource commitment	0
Land-use inventory	3
Road & utilities infrastructure	0

50	55	64	53	52	51	58	49	48	47	46	45	44	43	42	41
Septic tank	Receiving waters effects on Tampa Bay	Water demand	Human health effects from water pollution	Carcinogenic effects of polluted waters	Air quality	Water quality	Date dissemination on air & water quality	Traffic access and utilities	Current data collection methods	Regional and comprehensive planning efforts					
+2	+5	+5	+1	+1	0	+5	+4	0	+1	+3					

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 1.3

Effects of land use, zoning and redevelopment on the habitat and eco-system.

Impact Score To Distribute 107 ☒ Impact Score Assigned 137

0	Socio-economic indicators on family
3	Topographic information
0	Transportation network
1	Demographic indicators
5	Storm water sources
9	General data on value
+	Storm water impact (water quality) measurements
+	Storm water impact (flooding) measurements
3	Water & air quality regulatory agencies
1	Efficient decision-making
1	Standardized data collection formats
5	Hazardous waste site location
5	Hazardous waste effects

2	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
use data	Level of service data	Access transit	Water supply	Federal funding	Common GIS data forecasts	Environmental effects on habitat	Environmental effects on sensitive land	Socio-economic indicators	Land use categories	Educational indicators	Run off water quality	Water quality atmospheric computer	Run off water quantity	Human vital statistics	Medical records on pediatric patients
3	3	0	2	0	0	+5	+5	+1	+4	0	+5	0	+5	0	0

NEXUS				
1	Surface & ground water characteristics	+	6	
2	Air quality monitoring information		0	
3	Traffic projections		0	
4	Air quality pollution sources		+2	
5	Population projections		+2	
6	Road maps		0	
7	Population growth		+1	
8	Vacant land availability		+2	
9	Resource commitment		+2	
10	Land-use inventory		+5	
11	Road & utilities infrastructure		0	

TAAPA BAY REGIONAL COORDINATING COUNCIL											
POLICY/ISSUE No. 1.4											
Water quality: eutrophication and its impact on living resources											
Impact Score To Distribute					204	X	Impact Score Assigned			170	
12	Existing land use data	+10	13	Level of service data	0	14	Access transit	0	15	Water supply	+2
16	Federal funding	+1	17	Common OIB data forecasts	+10	18	Environmental effects on habitat	+3	19	Environmental effects on sensitive land	+3
20	Socio-economic indicators	0	21	Land use categories	+2	22	Educational indicators	+1	23	Run off water quality	+3
24	Water quality atmospheric inputs	+3	25	Run off water quantity	+5	26	Human vital statistics	0	27	Medical records on pediatric patients	0

+2	Septic tank	+	2	
+15	Receiving waters effects on Tampa Bay			
0	Water demand			
+3	Human health effects from water pollution			
+1	Carcinogenic effects of polluted waters			
0	Air quality			
+5	Water quality			
+1	Data dissemination on air & water quality			
0	Traffic access and utilities			
+10	Current data collection methods			
2	Regional and comprehensive planning efforts			

0	Socio-economic indicators on Famill	+	0	
+15	Topographic information			
0	Transportation network			
0	Demographic indicators			
+15	Storm water sources			
0	General data on wells			
+15	Storm water impact (water quality) measurements			
+5	Storm water impact (flooding) measurements			
+3	Water & air quality regulatory agencies			
0	Efficient decision-making			
+10	Standardized data collection formats			
+1	Hazardous waste site location			
0	Hazardous waste effects			

+2	Septic tank	38
+15	Receiving waters effects on Tampa Bay	39
0	Water demand	54
+2	Human health effects from water pollution	53
+1	Carcinogenic effects of polluted waters	52
0	Air quality	51
+5	Water quality	50
+1	Data dissemination on air & water quality	49
0	Traffic access and utilities	48
+10	Current data collection methods	47
+3	Regional and comprehensive planning efforts	46
		45
		44
		43

TAMPA BAY REGIONAL COORDINATING COUNCIL			
POLICY/ISSUE No. 1.4			
Water quality: eutrophication and its impact on living resources			
Impact Score To Distribute	204	X	Impact Score Assigned
			170

0	Socio-economic indicators on fam'l
+5	Topographic information
0	Transportation net-work
0	Demographic indicators
+15	Storm water sources
0	General data on vells
+15	Storm water impact (water-quality) measurements
+5	Storm water impact (flooding) measurements
+3	Water & air quality regulatory agencies
0	Efficient decision-making
+10	Standardized data collection formats
+1	Hazardous waste site location
0	Hazardous waste effects

NEXUS

Surface & ground water characteristics	+
Air quality monitoring information	+
Traffic projections	0
Air quality pollution sources	+
Population projections	0
Road maps	0
Population growth	0
Vacant land availability	0
Resource commitment	+
Land-use inventory	+
Road & utilities infrastructure	0

2	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
use data	Level of service data	Access transit	Water supply	Federal funding	Common GIS data formats	Environmental effects on habitat	Environmental effects on sensitive land	Socio-economic indicators	Land use categories	Educational indicators	Run off water quality	Water quality atmospheric impacts	Run off water quantity	Human vital statistics	Medical records on pediatric patients
	0	0	0	0	0	30	30	0	+		10	+	+	0	0

50	55	54	53	52	51	50	49	48	47	46	45	44	43	42
Septic tank	Receiving waters effects on Tampa Bay	Water demand	Human health effects from water pollution	Carcinogenic effects of polluted waters	Air quality	Water quality	Date dissemination on air & water quality	Traffic access and utilities	Current data collection methods	Regional and comprehensive planning efforts				
10	+	0	+	+	+	+	+	0	+	0				

TAMPA BAY REGIONAL COORDINATING COUNCIL			
POLICY/ISSUE No. 1.4			
Water quality: eutrophication and its impact on living resources			
Impact Score To Distribute	204	Impact Score Assigned	204

0	Socio-economic indicators on family
+	Topographic information
0	Transportation network
0	Demographic indicators
+	Storm water sources
+	General data on velle
+	Storm water impact (water quality) measurements
+	Storm water impact (flooding) measurements
+	Water & air quality regulatory agencies
	Efficient decision-making
+	Standardized data collection formats
+	Hazardous waste site location
+	Hazardous waste effects

NEXUS

1	Surface & ground water characteristics	2.3
2	Air quality monitoring information	1.4
3	Traffic projections	
4	Air quality pollution sources	1.10
5	Population projections	7
6	Road maps	
7	Population growth	
8	Vacant land availability	
9	Resource commitment	
10	Land-use inventory	1.2
11	Road & utilities infrastructure	1.4

56	Septic tank	
55	Receiving waters effects on Tampa Bay	2.3
54	Water demand	
53	Human health effects from water pollution	1.5
52	Carcinogenic effects of polluted waters	0.7
51	Air quality	1.5
50	Water quality	2.3
49	Data dissemination on air & water quality	
48	Traffic access and utilities	
47	Current data collection methods	0.7
46	Regional and comprehensive planning efforts	
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42		

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 1.7

Overlap duplicate services between E.P.C., State and County regulations e.g. State and County permits.

Impact Score To Distribute 70 X Impact Score Assigned 70

12	Existing land use data	1.4
13	Level of service data	
14	Access transit	
15	Water supply	
16	Federal funding	3.5
17	Common GIS data formats	
18	Environmental effects on habitat	1.10
19	Environmental effects on sensitive land	1.0
20	Socio-economic indicators	
21	Land use categories	0.7
22	Educational indicators	
23	Run off water quality	1.5
24	Water quality atmospheric inputs	3.5
25	Run off water quantity	0.7
26	Human vital statistics	
27	Medical records on pediatric patients	

	Socio-economic indicators on Family
	Topographic information
	Transportation network
	Demographic indicators
1.2	Storm water sources
0.7	General data on value
1.2	Storm water impact (water quality) measurements
3.5	Storm water impact (flooding) measurements
1.5	Water & air quality regulatory agencies
10.5	Efficient decision-making
0.7	Standardized data collection formats
3.5	Hazardous waste site location
3.5	Hazardous waste effects

NEXUS

1	Surface & ground water characteristics	4
2	Air quality monitoring information	0
3	Traffic projections	2
4	Air quality pollution sources	0
5	Population projections	2
6	Road maps	20
7	Population growth	2
8	Vacant land availability	1
9	Resource commitment	0
10	Land-use inventory	4
11	Road & utilities infrastructure	15

4	3	6	0	0	5	0	0	1	2	0	0	0	2	0	0
Existing land use data	Level of service data	Access transit	Water supply	Federal funding	Common GIS data formats	Environmental effects on habitat	Environmental effects on sensitive land	Socio-economic indicators	Land use categories	Educational indicators	Run off water quality	Water quality atmospheric	Run off water quantity	Human vital statistics	Medical records on pediatric patients
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
Septic tank	Receiving waters effects on Tampa Bay	Water demand	Human health effects from water pollution	Carcinogenic effects of polluted waters	Air quality	Water quality	Data dissemination on air & water quality	Traffic census and utilities	Current data collection methods	Regional and comprehensive planning efforts				
0	0	2	0	0	0	0	0	2	2	4				

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TAMPA BAY REGIONAL COORDINATING COUNCIL	
POLICY/ISSUE No. 1.9	
Standard street mapping methodology: compatible names and addresses between counties. E	
Impact Score To Distribute	Impact Score Assigned
114	114

1	Socio-economic indicators on facility
3	Topographic information
12	Transportation network
2	Demographic indicators
3	Storm water sources
0	General data on wells
0	Storm water impact (water quality) measurements
2	Storm water impact (flooding) measurements
0	Water & air quality regulatory agencies
3	Efficient decision-making
2	Standardized data collection formats
0	Hazardous waste site location
0	Hazardous waste effects

NEXUS	
Surface & ground water characteristics	0
Air quality monitoring information	0
Traffic projections	0
Air quality pollution sources	0
Population projections	0
Road maps	+15
Population growth	0
Vacant land availability	0
Resource commitment	0
Land-use inventory	0
Road & utilities infrastructure	+

88	Septic tank	88
89	Receiving waters effects on Tampa Bay	89
90	Water demand	90
91	Human health effects from water pollution	91
92	Carcinogenic effects of polluted waters	92
93	Air quality	93
94	Water quality	94
95	Data dissemina- tion on air & water quality	95
96	Traffic access and utilities	96
97	Current data collection methods	97
98	Regional and comprehensive planning efforts	98
99		99
100		100
101		101
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193		193
194		194
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198		198
199		199
200		200

POLICY/ISSUE No. 1.9

Impact Score
To Distribute

Impact Score
Assigned

1	Socio-economic indicators on family
2	Topographic information
3	Transportation network
4	Demographic indicators
5	Storm water sources
6	General data on wells
7	Storm water impact (water quality) measurements
8	Storm water impact (flooding) measurements
9	Water & air quality regulatory agencies
10	Efficient decision-making
11	Standardized data collection formats
12	Hazardous waste site location
13	Hazardous waste effects

2	12	Level of service data	()
13	13	Level of service data	()
14	14	Area transit	(10)
15	15	Veter supply	()
16	16	Federal funding	(10)
17	17	Common GIS data formats	(20)
18	18	Environmental effects on habitat	()
19	19	Environmental effects on sensitive land	()
20	20	Socio-economic indicators	()
21	21	Land use categories	()
22	22	Educational indicators	()
23	23	Run off water quality	()
24	24	Water quality atmospheric inputs	()
25	25	Run off water quantity	()
26	26	Human vital statistics	()
27	27	Medical records on pediatric patients	()

[illegible]

NEXUS

Surface & ground water characteristics

Air quality monitoring information

Traffic projections

Air quality pollution sources

Population projections

Road maps

Population growth

Vacant land availability

Resource commitment

Land-use inventory

Road & utilities infrastructure

56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
Septic tank	Receiving waters effects on Tampa Bay	Water demand	Human health effects from water pollution	Corrosive effects of polluted waters	Air quality	Water quality	Data dissemination on air & water quality	Traffic access and utilities	Current data collection methods	Regional and comprehensive planning efforts				
									20					

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 2.2

To establish a data exchange standard format: data dictionary and Q. & A. report.

Impact Score To Distribute

128

Impact Score Assigned

128

Socio-economic indicators on family

Topographic information

Transportation network

Demographic indicators

Storm water sources

General data on wells

Storm water impact (water quality) measurements

Storm water impact (flooding) measurements

Water & air quality regulatory agencies

Efficient decision-making

Standardized data collection formats

Hazardous waste site location

Hazardous waste effects

University and use data

Level of service data

Access transit

Water supply

Federal funding

Common GIS data formats

Environmental effects on habitat

Environmental effects on sensitive land

Socio-economic indicators

Land use categories

Educational indicators

Run off water quality

Water quality atmospheric

Run off water quantity

Human vital statistics

Medical records on pediatric patients

2

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60

18

NEXUS	
Surfaces & ground water characteristics	+ 10
Air quality monitoring information	-
Traffic projections	-
Air quality pollution sources	- 6
Population projections	- 3
Road maps	- 6
Population growth	+ 1
Vacant land availability	-
Resource commitment	+ 5
Land-use inventory	-
Road & utilities infrastructure	-

TAMPA BAY REGIONAL COORDINATING COUNCIL			
POLICY/ISSUE No. 2.7			
Water quality general data standardized to be shared by multi-jurisdictional bodies.			
Impact Score To Distribute	114	X	Impact Score Assigned
			100

2	use date	12
13	Level of services data	+
14	Assess transit	1
15	Veter supply	+5
16	Federal funding	+
17	Common GIS data forecasts	+
18	Environmental effects on habitat	0
19	environmental effects on sensitive land	0
20	Socio-economic indicators	10
21	Land use categories	1
22	Educational indicators	
23	Run off water quality	2
24	Water quality atmospheric inputs	2
25	Run off water quantity	+
26	Human vital statistics	0
27	Medical records on pediatric	0

NEXUS

1	Surface & ground water characteristics	+ ✓
2	Air quality monitoring information	
3	Traffic projections	
4	Air quality pollution sources	
5	Population projections	+ ✓
6	Road maps	
7	Population growth	+ ✓
8	Vacant land availability	+ ✓
9	Resource commitment	+ ✓
10	Land-use inventory	✓
11	Road & utilities infrastructure	+ ✓

38	Septic tank	✓
39	Receiving waters effects on Tampa Bay	✓
40	Water demand	✓
41	Human health effects from water pollution	✓
42	Carcinogenic effects of polluted waters	✓
43	Air quality	✓
44	Water quality	✓
45	Data dissemination on air & water quality	✓
46	Traffic census and (utilities)	✓
47	Current data collection methods	✓
48	Regional and comprehensive planning efforts	✓
49		
50		
51		

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 3.1

Water supply infrastructure to meet population growth: surface and ground water characteristics.

Impact Score To Distribute 234 X Impact Score Assigned 183

	Socio-economic indicators on family
✓	Topographic information
+ ✓	Transportation network
+ ✓	Demographic indicators
+ ✓	Storm water sources
+ ✓	General data on wells
+ ✓	Storm water impact (water quality) measurements
+ ✓	Storm water impact (flooding) measurements
+ ✓	Water & air quality regulatory agencies
✓	Efficient decision-making
✓	Standardized data collection formats
✓	Hazardous waste site location
✓	Hazardous waste effects

12	Existing land use data	✓
13	Level of service data	✓
14	Access transit	✓
15	Water supply	✓
16	Federal funding	✓
17	Common GIS data formats	✓
18	Environmental effects on habitat	✓
19	Environmental effects on sensitive land	✓
20	Socio-economic indicators	✓
21	Land use categories	✓
22	Educational indicators	✓
23	Run off water quality	✓
24	Water quality atmospheric inputs	✓
25	Run off water quantity	✓
26	Human vital statistics	✓
27	Medical records on pediatric patients	✓

NEXUS		Surface & ground water characteristics			Septic tank	58	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40
Air quality monitoring information					Receiving waters effects on Tampa Bay																	
Traffic projections					Voter demand	30										10						
Air quality pollution sources					Human health effects from water pollution																	
Population projections					Carcinogenic effects of polluted waters																	
Road maps					Air quality																	
Population growth		20			Water quality																	
Vacant land availability		10			Date dissemination on air & water quality																	
Resource commitment		5			Traffic access and utilities																	
Land-use inventory		10			Current data collection methods																	
Road & utilities infrastructure		10			Regional and comprehensive planning efforts																	

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 3.1

Water supply infrastructure to meet population growth: surface and ground water characteristics.

Impact Score To Distribute	234	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; transform: rotate(45deg);"></div>	Impact Score Assigned	225
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10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Level of service data	Access transit	Water supply	Federal funding	Common GIS data formats	Environmental effects on habitat	Environmental effects on sensitive land	Socio-economic indicators	Land use categories	Educational indicators	Run off water quality	Water quality atmospheric inputs	Run off water quantity	Human vital statistics	Medical records on pediatric patients	Socio-economic indicators on family	Topographic information	Transportation network	Demographic indicators	Storm water sources	General data on wells	Storm water impact (water quality) measurements	Storm water impact (flooding) measurements	Water & air quality regulatory agencies
2	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35

	Septic tank	58
	Receiving waters affects on Tampa Bay	55
✓ 30	Water demand	54
	Human health effects from water pollution	53
	Carcinogenic effects of polluted waters	52
	Air quality	51
	Water quality	50
	Data dissemina- tion on air & water quality	49
	Traffic escapes and utilities	48
	Current data collection methods	47
✓ 10	Regional and comprehensive planning efforts	46
		45
		44
		43

TAMPA BAY REGIONAL COORDINATING COUNCIL			
POLICY/ISSUE No. 3.1			
Water supply-infrastructure to meet population growth: surface and ground water characteristics.			
Impact Score To Distribute	234	X	Impact Score Assigned 225

	Socio-economic indicators on family
✓ 10	Topographic information
	Transportation network
	Demographic indicators
	Storm water sources
✓ 30	General data on valls
	Storm water impact (water quality) measurements
	Storm water impact (flooding) measurements
	Water & air quality regulatory agencies
	Efficient decision-making
✓ 10	Standardized data collection forms
	Hazardous waste site location
	Hazardous waste effects

NEXUS

1	Surface & ground water characteristics	<input checked="" type="checkbox"/>
2	Air quality monitoring information	<input type="checkbox"/>
3	Traffic projections	<input checked="" type="checkbox"/>
4	Air quality pollution sources	<input type="checkbox"/>
5	Population projections	<input checked="" type="checkbox"/>
6	Road maps	<input checked="" type="checkbox"/>
7	Population growth	<input checked="" type="checkbox"/>
8	Vacant land availability	<input type="checkbox"/>
9	Resource commitment	<input checked="" type="checkbox"/>
10	Land-use inventory	<input checked="" type="checkbox"/>
11	Road & utilities infrastructure	<input checked="" type="checkbox"/>

36	Septic tank	<input type="checkbox"/>
37	Receiving waters effects on Tampa Bay	<input type="checkbox"/>
38	Water demand	<input checked="" type="checkbox"/>
39	Human health effects from water pollution	<input type="checkbox"/>
40	Carcinogenic effects of polluted waters	<input type="checkbox"/>
41	Air quality	<input type="checkbox"/>
42	Water quality	<input type="checkbox"/>
43	Data dissemination on air & water quality	<input type="checkbox"/>
44	Traffic access and utilities	<input checked="" type="checkbox"/>
45	Current data collection methods	<input checked="" type="checkbox"/>
46	Regional and comprehensive planning efforts	<input checked="" type="checkbox"/>
47		
48		
49		
50		

192 160 131 123

TAMPA BAY REGIONAL COORDINATING COUNCIL			
POLICY/ISSUE No. 3.3			
Procedures in: hurricane preparedness, evacuation and recovery planning.			
Impact Score To Distribute		Impact Score Assigned	
111		111	

<input checked="" type="checkbox"/>	Socio-economic indicators on family
<input checked="" type="checkbox"/>	Topographic information
<input checked="" type="checkbox"/>	Transportation network
<input checked="" type="checkbox"/>	Demographic indicators
<input checked="" type="checkbox"/>	Storm water sources
<input type="checkbox"/>	General data on wells
<input checked="" type="checkbox"/>	Storm water impact (water quality) measurements
<input checked="" type="checkbox"/>	Storm water impact (flooding) measurements
<input type="checkbox"/>	Water & air quality regulatory agencies
<input checked="" type="checkbox"/>	Efficient decision-making
<input checked="" type="checkbox"/>	Standardized data collection forms
<input checked="" type="checkbox"/>	Hazardous waste site location
<input type="checkbox"/>	Hazardous waste effects

12	Existing land use data	<input checked="" type="checkbox"/>
13	Level of service data	<input checked="" type="checkbox"/>
14	Access transit	<input checked="" type="checkbox"/>
15	Water supply	<input checked="" type="checkbox"/>
16	Federal funding	<input checked="" type="checkbox"/>
17	Common GIS data formats	<input checked="" type="checkbox"/>
18	Environmental effects on habitat	<input type="checkbox"/>
19	Environmental effects on sensitive land	<input type="checkbox"/>
20	Socio-economic indicators	<input type="checkbox"/>
21	Land use categories	<input checked="" type="checkbox"/>
22	Educational indicators	<input type="checkbox"/>
23	Run off water quality	<input type="checkbox"/>
24	Water quality atmospheric inputs	<input type="checkbox"/>
25	Run off water quantity	<input type="checkbox"/>
26	Human vital statistics	<input checked="" type="checkbox"/>
27	Medical records on pediatric patients	<input checked="" type="checkbox"/>

NEXUS

Surface & ground water characteristics	-
Air quality monitoring information	-
Traffic projections	5% (6)
Air quality pollution sources	-
Population projections	2% (3)
Road maps	10% (11)
Population growth	2% (3)
Vacant land availability	-
Resource commitment	5% (6)
Land-use inventory	-
Road & utilities infrastructure	5% (6)

2	use data	-
13	level of service data	-
14	Access transit	5% (6)
15	Water supply	10% (11)
16	Federal funding	-
17	Common GIS data formats	2% (3)
18	Environmental effects on habitat	-
19	Environmental effects on sensitive land	-
20	Socio-economic indicators	-
21	Land use categories	-
22	Educational indicators	-
23	Run off water quality	-
24	Water quality atmospheric input	-
25	Run off water quantity	-
26	Human vital statistics	-
27	Medical records on pediatric patients	5% (6)

50	Septic tank	-
51	Receiving waters effects on Tampa Bay	-
52	Water demand	2% (3)
53	Human health effects from water pollution	-
54	Cardiac effects of polluted waters	-
55	Air quality	-
56	Water quality	-
57	Data dissemination on air & water quality	-
58	Traffic access and utilities	+ 7
59	Current data collection methods	-
60	Regional and comprehensive planning efforts	+
61		
62		
63		
64		
65		

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 3.3

Procedures in: hurricane preparedness, evacuation and recovery planning.

Impact Score To Distribute	111	<div style="font-size: 2em;">X</div>	Impact Score Assigned	103
----------------------------	-----	--------------------------------------	-----------------------	-----

-	Socio-economic indicators on Family
10%	Topographic information
10%	Transportation network
1%	Demographic indicators
-	Storm water sources
-	General data on vells
-	Storm water impact (water quality) measurements
-	Storm water impact (flooding) measurements
-	Water & air quality regulatory agencies
-	Efficient decision-making
-	Standardized data collection formats
5%	Hazardous waste site location
+	Hazardous waste effects

NEXUS

Surface & ground water characteristics	
Air quality monitoring information	
Traffic projections	
Air quality pollution sources	
Population projections	
Road maps	
Population growth	
Vacant land availability	X
Resource commitment	
Land-use inventory	12.5
Road & utilities infrastructure	

50	65	54	53	52	51	50	49	48	47	46	45	44	43	42	41
Septic tank	Receiving water effects on Tampa Bay X	Water demand	Human health effects from water pollution	Carcinogenic effects of polluted water	Air quality	Water quality	Date dissemination on air & water quality	Traffic access and utilities	Current data collection methods	Regional and comprehensive planning efforts					
	25														

TAMPA BAY REGIONAL COORDINATING COUNCIL

POLICY/ISSUE No. 3.6

Flood control: effects on land use, drainage and erosion.

Impact Score To Distribute 200 X Impact Score Assigned 188

	Socio-economic indicators on family
	Topographic information
	Transportation network
	Demographic indicators
50	Storm water sources
	General data on vials
	Storm water impact (water quality) X Measurements 25%
50	Storm water impact (flooding) measurements 25%
	Water & air quality regulatory agencies
	Efficient decision-making
	Standardized data collection forms
	Hazardous waste site location
	Hazardous waste effects

12.5	use data 25%	Level of service data	Access transit	Water supply	Federal funding	Common GIS data formats	Environmental effects on habitat	Environmental effects on sensitive land	Socio-economic indicators	Land use categories	Educational indicators	Run off water quality	Water quality atmospheric	Run off water X 25%	Human vital statistics	Medical records on pediatric patients
2	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

Data Descriptive Survey Instructions

The following topics relate to the Data Descriptive Summary found on page 3-4 and provide information for completing the blanks in the Summary. Regarding "truth in packaging," it is important that the information be given as completely and accurately as possible for identification purposes. Also, please identify who should be contacted in case of questions on the survey instrument.

Data Descriptive Survey Summary

Subject: A descriptive name of the data. This may be multiple files that can be grouped under one heading.

Nondigital - raw data - not automated

Raster data - raster format

Vector data - vector format

Resolution - (pixel resolution) for imaged information (raster) provide numbers that define the level of accuracy.

Scale - use the format 1:x (for example the USGS quads are 1:24000)

Datum - what datum was the map using, 1927, 1983.

Date range of source material - Dates that the information was collected. If collection is ongoing use to present. The Comment is for further description of the date range. You may note that information was only collected in the spring, etc.

Source/creator - identifies who collected the data

Update schedule - how often is this information updated.

Positional Accuracy - for example the USGS quads are accurate to +/- 40 ft.

File size - for automated data - how big is the file in bytes (megabytes, gigabytes, etc.)

Output format - This relates to the export file structure and/or software - DLG, ArcInfor Vx, etc.

Output medium - CCT 9 track tapes 6250bpi, 1600 bpi, 8mm exobyte, 1.4 mb floppy disk, etc.

Geographic coverage - name of specific geographic location - watershed, or however the information was collected. There is a section that describes the geographic coverage by political boundary.

Descriptive summary: Additional information that would be of interest to the recipient.

Geographic coverage by Political Boundary

Information is typically collected by a governmental (State or Federal) entity within a political boundary. This is an exclusive hierarchy. The deeper the level, the less area is covered. For example, if you have statewide coverage, only enter the name of the state, ie. FL. If information has only been collected by one county then enter FL, Hillsborough. You do not have to fill out all of levels; i.e., if information has been collected within a water management district, it is only necessary to indicate which water management district. Put in the abbreviation of the water management district; ie. SWFWMD.

This is far from a perfect system. We are developing a grid system using the tic marks on the USGS 1:2400 quads that will allow a more accurate delineation of the data collection area. That will be available by August 1992.

Storage Medium

Nondigital

If you have nondigital data that is to be included, describe how that information is stored (notes, cards, journal article, etc.)

Digital

Describe the platform on which the information is stored. This is self explanatory.

Data Information Contact.

Data information contact - who to contact if there are questions about the data.

Data transfer contact - who to contact to acquire the data.

DATA DESCRIPTIVE SURVEY

Name: _____

Agency: _____

Phone: _____

Data Descriptive Summary:

Subject: _____

Nondigital ____ Raster Data ____ Vector Data ____

Resolution _____ Scale _____ Datum _____

Date Range of Source Material _____ to _____

Comment: _____

Source/Creator of Data: _____

Update Schedule: _____

Positional Accuracy: +/- _____

File Size: _____

Output Format: _____

Output Medium: _____

Geographic Coverage: _____

Descriptive Summary: _____

Geographic Coverage by Political Boundary of the Data:

State

State ____ County _____ City/Town _____

Agency _____ Region/District _____

Water Management District _____

Regional Planning Councils _____

West Coast Regional Water Supply Authority _____

Federal

Dept _____ Bureau _____ Region/Dist _____

Other Boundaries _____

Description

STORAGE MEDIUM

NonDigital:

Description: _____

Digital:

Hardware:

Software:

Operating System: _____

Database: _____

GIS/CADD/Mapping: _____

Other: _____

Does the system have dial up capability (Y/N) _____

Phone (_____) _____ - _____

Explanatory Notes: _____

Data Information Contact

Information Contact Person _____

Agency/Organization _____

Unit _____

Title _____

Address _____

City _____ State _____

Zip _____.

Phone: Suncom _____

(_____) _____

Data Transfer Contact

Transfer Contact Person _____

Agency/Organization _____

Unit _____

Title _____

Address _____

City _____ State _____

Zip _____.

Phone: Suncom _____

(_____) _____

APPENDIX 5

DRAFT Issue Statement (3rd Revision)

Date: September 30, 1992

Title: Stormwater Management Consensus Group

Activity: To identify, coordinate and facilitate stormwater data exchange among federal, state, regional and local agencies assessing stormwater management issues in the Tampa Bay region.

Chairman:

<u>Name</u>	<u>Agency</u>	<u>Telephone</u>
Holly Greening	Tampa Bay National Estuary Program	(813) 893-2756

Co-Chairman:

<u>Name</u>	<u>Agency</u>	<u>Telephone</u>
Early Sorenson	Florida Department of Environmental Regulation	(813) 620-6100 x343

Participants:

<u>Name</u>	<u>Agency</u>	<u>Telephone</u>
Peter Clark	Tampa Bay Reg Plng Council	(813) 577-5151
Larry Colbert	LIS Coordinator, Manatee Co	(813) 748-4501x3075
Chuck Courtney	EPC of H'boro Co	(813) 272-7104
Tom Cuba	Dir, Pinellas Co Environmental Mgmt	(813) 462-4761
Dave Gowan	STORET Coord/FDER	(904) 487-0505
Mike Holtkamp	SWIM/SWFWMD	(813) 985-7481x2212
Clark Hull	SWFWMD	(904) 796-7211
Bob Keim	Hillsborough Co GIS Manager	(813) 272-5912x3202
Debora Kohne	H'boro Co Eng Svcs/Stormwatr Design	(813) 272-5912x3614
Bill Lofgren	TBRCC	(813) 577-5151
Don Lord	Pinellas Co Dept of Comms	(813) 462-3101
Early Sorenson	FDER	(813) 620-6100 x343
Elmer Spence	Pinellas Co Public Works	(813) 462-3251
David Stage	Staff Dir, GMDNCC	(904) 922-7193

Problem Description:

Introduction

The control of the quantity and quality of stormwater runoff is of primary importance throughout the state of Florida. Stormwater runoff management is essential for flood control and for the control of contaminants contained in runoff, which can result in surface water degradation in rivers, lakes, and estuaries. The Florida Department of Environmental Regulation's Stormwater Division states that stormwater runoff is now considered

the state's biggest water pollution threat to the quality of Florida's surface waters. Recent research (reviewed by Henigar & Ray, Inc., for the Southwest Florida Water Management District (SWFWMD) Surface Water Improvement and Management Program (SWIM), 1991) showed that stormwater-associated pollution was responsible for

- 80-85% of the heavy metal loading to Florida's surface waters;
- Virtually all of the sediment deposited in state waters; and
- Nutrient loads comparable to those in secondarily treated sewage effluent discharges.

Recent revisions in stormwater management regulations at all levels of government reflect the growing concerns with water quality issues associated with stormwater runoff and its management.

Within the Tampa Bay region, stormwater issues are addressed by existing federal, state, regional, and local regulations. The federal Environmental Protection Agency (EPA) has recently enacted a rule which requires many industrial facilities, cities, and counties to obtain National Pollutant Discharge Elimination Systems (NPDES) permits for discharging stormwater and submit management plans to reduce pollutants in runoff (See Attachment A). At the state level, a complex system of regulations and regulatory entities has been developed to address stormwater management issues, including Florida Department of Environmental Regulation's "stormwater rule." Within the Tampa Bay region, SWFWMD issues surface water and stormwater permits and the Florida Department of Community Affairs (DCA) requires the development and implementation of a Level of Service (LOS) standard for drainage infrastructure in all comprehensive plans. In addition to these agencies, local governments of cities and counties in the Tampa Bay region also have ordinances addressing stormwater management issues.

A need exists for a regionwide stormwater action plan to coordinate activities of the many agencies with stormwater management authority. One important initial component to an assessment such as this is the standardization and coordination of data collection and reporting procedures between and among regulatory entities. This standardization is crucial to allow comparison and evaluation between regulated sites. Currently, all agencies working with stormwater water quality samples are requested to submit their data to STORET which potentially eases the task for this Consensus Group. It would appear that the standards chosen are those required for STORET submittal.

Problem Statement:

- The scope and effectiveness of current policies and regulations relating to stormwater management throughout the region are not fully documented and unknown.
- Water quality data collection programs or permit applicants for regulatory requirements are not always complete enough to allow valid comparisons of data or extrapolation of results to other areas of interest.
- High concentrations of metals and DDT are present.
 - In 1992, SWIM testing of sediments in some existing borrow pits of the Coastal America's restoration site showed high levels of some metals (e.g. silver) and the presence of DDT. Silver is a biologically nonessential, nonbeneficial conservative element that has been found to be toxic to freshwater and marine organisms and often carried by stormwater runoff.

- Indications of sediment contamination from agricultural runoff have been found in several areas of Tampa Bay. A recent NOAA Status and Trends report (1991) found that contaminants including organic pesticides, Mirex, and other pesticide groups are associated with agricultural areas of the Bay.
- There is no regionwide mechanism for the coordination of stormwater management data collection efforts, leading to the potential for duplicated effort and inefficient use of the tax dollar.
- Localized solutions are often implemented due to jurisdictional limits where technical recommendations suggest the need for wider ranging solutions on a regional basis.

Potential Benefits:

- An assessment such as this would significantly benefit regional or local growth management planning, in addition to other resource management programs such as the Tampa Bay National Estuary Program.
- Other agencies, such as the Environmental Protection Commission of Hillsborough County; Regional counties Planning and Zoning and Stormwater Utility departments, the Endangered Lands Acquisition Program; and Southwest Florida Water Management District (SWFWMD) will be able to access and use a consolidated data base for the development of rules and ordinances and which further facilitate development of DER and DCA's LOS goals.
- Tampa Bay's aquatic resources could gain additional levels of protection as a result of this project.
- Savings accrued in NPDES pursuant to retrofit projects can be obtained by data gathered.

Ongoing Activities:

Within the GIS/planning community there are a number of similar activities that can benefit from this endeavor and vice versa. Close coordination is necessary to share results and avoid duplication of effort.

- Hillsborough County's Stormwater Utility is responsible for NPDES permitting for the County. The centralization of spatial and database water resource information for this project could assist them in gaining some information they have yet to collect and the development of a management plan can provide an avenue for addressing stormwater pollution problems in this project area.
- An effort involving the coordination of Pinellas County municipal governments and several departments under the Pinellas County Board of County Commissioners, undertook the task of applying for the NPDES permit through use of GIS technology. In order to provide continuity, it was necessary to convert USGS Quadrangle Maps (QUADS) into the county's system based on Florida State Plane Coordinates (FLSP) and this was done converting USGS coordinate values and constructing a coordinate grid in GeoVision. The grid, containing 13 Quadrangles, became the basis of data organization and reporting for the project and resulted in a five map series and supporting attributes as follows:

Series A: Base Map, City Limits, U.S. Waters, Drainage Outfalls, Basins/Subbasins, Control Structures, Screening Points, Municipal Boundaries, Stream Tributaries.

Series B: Base Map, Public Lands, Municipal Boundaries, Drainage Basins.

Series C: Base Map, Basins/Subbasins, Land Fill, Permitted Sources, Municipal Boundaries.

Series D: Base Map, Land Use.

Series E. U.S.G.S., Topography.

The data will form an integral part of the County's GIS system and will serve it in good stead for the next several years as it is updated, added to, and changed to fit the requirements of the stormwater permitting effort.

- The Tampa Bay National Estuary Program is developing a bay-wide stormwater "action plan" which will integrate local, state and Federal mandates. Data sharing among agencies is an important element to the success of this effort.
- Southwest Florida Water Management District SWIM Department has a large ongoing stormwater retrofit program which will benefit from and contribute to the data sharing effort.
- STORET system is designed to hold NPDES data and DER, the statutory coordinating agency for water policy in Florida, has determined that all such data shall be placed in the STORET system as the official repository. STORET is the only existing database which is capable of holding data from all agencies, and provides a ready means for exchanging, easily, the data between agencies. STORET management in Tallahassee encourages collaborative data gathering, monitoring and sharing of data.
- DER Pollution Recovery Trust Fund ... (to be provided by Sorenson)

Goal: To improve information and data sharing among managers of stormwater runoff and related environmental effects.

Objectives:

1. Identify existing and needed data for use by managers of stormwater runoff in order to fulfill all permitting requirements for NPDES and other local requirements.
2. Develop quality and accuracy reports for each targeted data set consistent with STORET requirements.
3. Integrate as far as possible, data management protocols developed by the Tampa Bay National Estuary Program (TBNEP).
4. Identify potential improvement areas, especially areas of duplication in governmental management of stormwater issues and assess the ability of existing programs to meet management goals.
5. Facilitate the coordination and exchange and distribution of information collected as a part of regulated stormwater management programs.

Actions:

- 1.1 Convene an initial Consensus Group of natural resources planners and technical experts for the purpose of:
 - Refining Issue Statement

- Planning a brainstorming session to define targeted data types
- Identify leadership/composition of follow-on Action Group

Type of Action: Critical to Actions: All

Action Leader: Bill Lofgren/TBRCC/(813) 577-5151

Action Group Members: N/A

Start/Completion Date: 6/24/92

Costs of Action: To be determined

Progress Report: A one-time record of problems encountered and recommended solutions to be provided to Consensus Group Chairman for inclusion in report to TBNEP.

1.2 Identify STORET metadata reporting requirements.

Type of Action: Critical to Actions 2.1, 3.1, 4.1 & 5.1

Action Leader: Early Sorenson/FDER/(813) 620-6100 x343

Action Group Members:

Start/Completion Date:

Costs of Action: None

Progress Report: A short, written report of the minutes and results of the Preliminary Meeting, provided to Consensus Group Chairman. Report should list any problems encountered in the meeting and recommended solutions.

1.3 Finalize and publish a matrix of target data after reviewing agency comments and determining location of important, relevant data for transfer.

Type of Action: Critical to Actions 2.1, 3.1, 4.1 & 5.1

Action Leader: Holly Greening/TBNEP/(813) 893-2765

Action Group Members:

Start/Completion Date:

Costs of Action: None

Progress Report: A short, written report of the minutes and results of the Preliminary Meeting, provided to Consensus Group Chairman. Report should list any problems encountered in the meeting and recommended solutions.

- 2.1 Distribute to each agency, the Data Description Summary and Contact formats, and NEP protocols, if available; for compilation by agency GIS/Data designee, and brought to Preliminary Meeting.

Type of Action: Dependent on 1.1, 2.1

Action Leader: Bill Lofgren/TBRCC/(813) 577-5151

Action Group Members: N/A

Start/Completion Date: June 17, 1992/July 24, 1992

Costs of Action: None

Progress Report: A one-time, short written report on the problems encountered in agency follow through (internal communications, glitches, etc.) provided to Consensus Group Chairman.

- 2.2 Agencies insure that the Data Description Summary and Contact formats are completed ASAP.

Type of Action: Dependent upon Action 2.1, 2.2

Action Leader: Bill Lofgren/TBRCC/(813) 577-5151

Action Group Members: N/A - Each agency represented

Start Date: June 24, 1992

Completion Date: July 24, 1992 (Date of Council Meeting)

Costs of Action: To be determined

Progress Report: A one-time, short written report on the aspects of how successful action items 2.1 and 2.2 were completed.

- 2.3 Review Data Description Summaries and Contact Summaries, and assign to each agency, preparation of Quality and Accuracy Reports and Data Dictionary for relevant data held by that agency; convene Consensus Groups to refine data. Review Q&A reports and protocols and query agencies described data to insure an understanding of transformation software needed for transfer and to conceptualize how divergently formatted data can be transferred to STORET and develop some basic descriptive statistics for STORET.

Type of Action: Dependent upon Actions 2.1, 2.1; Critical to 2.4, 2.5, 2.6

Action Leader: Early Sorenson/FDER/(813) 620-6100 x343
Dave Gowan/STORET Coord/(904) 487-0505

Action Group Members: Each agency in matrix

Start Date:

Completion Date:

Costs of Action: To be determined

Progress Report: A short written report of monies needed for each expenditure for extraordinary personnel. Software or other costs necessary to complete each data transfer should be approved by the Chairman before the work is undertaken. By x/x/92, a schedule of anticipated costs necessary to complete all data transfers should be provided to Consensus Group Chairman. Finally, a written report listing the types of purchases, expenses, as well as a discussion of the technical problems encountered should be provided to the Chairman by the completion date.

- 2.4 Develop a series of shells to upload and download data in a more user-friendly venue.

Type of Action: Dependent upon Actions 2.1, 2.2, 2.3; Critical to 2.4

Action Leader:

Action Group Members:

Start Date:

Completion Date:

Costs of Action: To be determined

Progress Report: A short written report of monies needed for each expenditure for extraordinary personnel. Software or other costs necessary to complete each data transfer should be approved by the Chairman before the work is undertaken. By x/x/92, a schedule of anticipated costs necessary to complete all data transfers should be provided to Consensus Group Chairman. Finally, a written report listing the types of purchases, expenses, as well as a discussion of the technical problems encountered should be provided to the Chairman by the completion date.

- 2.5 Develop a link between STORET and GIS.

Type of Action: Dependent upon Actions 2.1, 2.1, 2.3, 2.4; Critical to 2.6

Action Leader:

Action Group Members:

Start Date:

Completion Date:

Costs of Action: To be determined

Progress Report: A short written report of monies needed for each expenditure for extraordinary personnel. Software or other costs necessary to complete each data transfer should be approved by the Chairman before the work is undertaken. By x/x/92, a schedule of anticipated costs necessary to

complete all data transfers should be provided to Consensus Group Chairman. Finally, a written report listing the types of purchases, expenses, as well as a discussion of the technical problems encountered should be provided to the Chairman by the completion date.

- 2.6 Develop uploading programs from other PC-based data management programs, such as dBASE and Lotus.

Type of Action: Dependent upon Actions 2.1, 2.2, 2.3, 2.4, 2.5

Action Leader:

Action Group Members:

Start Date:

Completion Date:

Costs of Action: To be determined

Progress Report: A short written report of monies needed for each expenditure for extraordinary personnel. Software or other costs necessary to complete each data transfer should be approved by the Chairman before the work is undertaken. By xx/xx/92, a schedule of anticipated costs necessary to complete all data transfers should be provided to Consensus Group Chairman. Finally, a written report listing the types of purchases, expenses, as well as a discussion of the technical problems encountered should be provided to the Chairman by the completion date.

- 3.1 Prepare two status reports to the RAC; the first summarizing preliminaries and progress on the first two objectives; the second at the completion of the goal.

Type of Action: Independent

Action Leader: Holly Greening/TBNEP/(813) 893-2765

Action Group Members:

Start Date:

Completion Date:

Costs of Action: To be determined

Progress Report: To include a written summary of each action item, including an estimate of percent of completion; funds spent and remaining funds for each task; an analysis of measures of success with specific observations on the problems encountered and recommended solutions for future efforts.

- 4.1 Inventory federal, state and local governments which address stormwater management issues in the Tampa Bay watershed and conduct a workshop of all relevant government agencies in the region to assess the degree of integration and cooperation among them.

Type of Action: Independent

Action Leader:

Action Group Members:

Start Date:

Completion Date:

Costs of Action: To be determined

Progress Report: A short written report to Chairman.

- 5.1 Using the GIS work undertaken by Pinellas County as a model for the stormwater permitting process, develop mechanisms that can be appropriated by other participating governments to facilitate the process and reduce duplicative efforts.

Type of Action: Dependent upon Actions 2.1, 2.2, 2.3, 2.4, 2.5

Action Leader:

Action Group Members:

Start Date:

Completion Date:

Costs of Action: To be determined

Progress Report: A short written report of monies needed for each expenditure for extraordinary personnel. Software or other costs necessary to complete each data transfer should be approved by the Chairman before the work is undertaken. A schedule of anticipated costs necessary to complete all data transfers should be provided to Consensus Group Chairman. Finally, a written report listing the types of purchases, expenses, as well as a discussion of the technical problems encountered should be provided to the Chairman by the completion date.

AGENCY	DATA TYPE
NOAA Weather Service	Natural Resources cont.
Hills, Cty. EPC	Marsh/mangrove
Hills, Cty. GIS	
Hills, City Stormwater Utility	
City-County Planning Commission	
TBRPC	
Fa. DNR	
Fa. DER	
SFWMD Stormwater Research	
SFWMD-SWM	
USGS	
TBNEP	
US COE	
Pineallas County DEM	
Pineallas County Sewer	
Pineallas County Water Dept.	
Pineallas City Planning Dept.	
Mannatee County Utilities	
Mannatee County EAC	
US EPA	
Fa. DOT	
SCS	
Hills, Cty. Agri. Ext.	
Pineallas Cty. Agri. Ext.	
Mannatee Cty. Agri. Ext.	

AGENCY

[illegible]

AGENCY	DATA TYPE	NOAA Weather Service	Hills. Cy. EPC	Hills. Cy. GIS	Hills. Cy. Stormwater Utility	City-County Planning Commission	TBRPC	Fla. DNR	Fla. DER	SFWMD Stormwater Research	SFWMD-SWIM	USGS	TBNEP	US COE	Pinellas County DEM	Pinellas County Sewer	Pinellas Cy Water Dept.	Pinellas Cy Planning Dept.	Manatee County Utilities	Manatee County EAC	US EPA	Fla. DOT	SCS	Hills. Cy. Agri. Ext.	Pinellas Cy. Agri. Ext.	Manatee Cy. Agri. Ext.
	Man-made influences cont.																									
	Septage disposal																									
	Permitted stormwater treat. sys. area																									
	Service areas for sewer																									
	Consumptive use permits																									
	Infrastructure for stormwater																									

STORMWATER MANAGEMENT DATA SOURCES

AGENCY	DATA TYPE
	NOAA Weather Service
	Hills. Cy. EPC
	Hills. Cy. GIS
	Hills. Cy Stormwater Utility
	City-County Planning Commission
	TBRPC
	Fla. DNR
	Fla. DER
	SFWMD Stormwater Research
	SFWMD-SWM
	USGS
	TBNEP
	US COE
	Pineellas County DEM
	Pineellas County Sewer
	Pineellas Cy. Water Dept.
	Pineellas Cy. Planning Dept.
	Mantoloking Cy. Utilities
	Mantoloking County EAC
	US EPA
	Fla. DOT
	SCS
	Hills. Cy. Agri. Ext.
	Pineellas Cy. Agri. Ext.
	Mantoloking Cy. Agri. Ext.

[illegible]

**REGIONAL ADVISORY COMMITTEE
STORMWATER CONSENSUS GROUP**

Agency _____

Data Type _____

Contact Person _____

Telephone _____

Comments _____

Agency _____

Data Type _____

Contact Person _____

Telephone _____

Comments _____

Agency _____

Data Type _____

Contact Person _____

Telephone _____

Comments _____

Federal Register

Thursday
April 2, 1992

Part VI

Environmental Protection Agency

40 CFR Part 122

National Pollutant Discharge Elimination
System Application Deadlines, General
Permit Requirements and Reporting
Requirements for Storm Water
Discharges Associated With Industrial
Activity; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 122

(FRL-4100-4)

National Pollutant Discharge Elimination System Application Deadlines, General Permit Requirements and Reporting Requirements for Storm Water Discharges Associated With Industrial Activity

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Water Quality Act (WQA) of 1987 added section 402(p) to the Clean Water Act (CWA). Section 402(p) of the CWA requires the Environmental Protection Agency (EPA) to establish phased and tiered requirements for storm water discharges under the National Pollutant Discharge Elimination System (NPDES) program. On August 16, 1991 (56 FR 40948), EPA requested public comments on several regulatory and policy issues regarding NPDES permits for storm water discharges associated with industrial activity. On November 5, 1991 (56 FR 56549), the Agency also proposed extending the deadline for submitting part 2 of group applications for storm water discharges associated with industrial activity.

In response to comment received on August 16, 1991, proposal, today's action describes a National Strategy for issuing NPDES permits for storm water discharges associated with industrial activity. Today's action also contains a final rule that revises minimum NPDES monitoring requirements for storm water discharges associated with industrial activity. In addition, today's rule establishes minimum requirements for filing notices of intent to be authorized to discharge under NPDES general permits.

Today's rule also establishes a deadline of October 1, 1992 for part 2 of group applications for storm water discharges associated with industrial activity. As noted above, this revised deadline was proposed on November 5, 1991. In connection with group applications, today's rule contains an amendment to clarify the minimum number of facilities that must submit sampling information in part 2 of a group application.

Finally, today's action codifies several provisions of Section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 or Transportation Act into the NPDES regulations. Section

1068 of the Transportation Act addressed permit application deadlines for storm water discharges associated with industrial activity from facilities that were owned or operated by municipalities.

EFFECTIVE DATE: The final rule becomes effective May 4, 1992.

ADDRESSES: The public record is located at EPA Headquarters, EPA Public Information Reference Unit, room 2402, 401 M Street, SW, Washington, DC, 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: For further information on the rule contact the NPDES Storm Water Hotline at (703) 821-4823 or: Kevin Weiss, Office of Wastewater Enforcement and Compliance (EN-336), United States Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, (202) 260-9518.

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I. Background

The 1972 amendments to the Federal Water Pollution Control Act (FWPCA, also referred to as the Clean Water Act or CWA), prohibited the discharge of any pollutant to navigable waters from a point source unless the discharge is authorized by a NPDES permit. Efforts to improve water quality under the NPDES program have focused traditionally on reducing pollutants in discharges of industrial process wastewater and from municipal sewage treatment plants. This program emphasis has developed for a number of reasons. At the onset of the program in 1972, many sources of industrial process wastewater and municipal sewage were not controlled adequately, and

represented pressing environmental problems. In addition, sewage outfalls and industrial process discharges were easily identified as responsible for poor, often drastically degraded water quality conditions. However, as pollution control measures were developed initially for these discharges, it became evident that more diffuse sources (occurring over a wide area) of water pollution, such as agricultural and urban runoff, were also major causes of water quality problems. Some diffuse sources of water pollution, such as agricultural storm water discharges and irrigation return flows, are exempted statutorily from the NPDES program. Controls for other diffuse sources have been slow to develop under the NPDES program.

A. Environmental Impacts

Several national assessments have been conducted to evaluate impacts on receiving water quality. For the purpose of these assessments, urban runoff was considered to be a diffuse source or nonpoint source pollution, although in legal terms, most urban runoff is discharged through conveyances such as separate storm sewers or other conveyances which are point sources under the CWA and subject to the NPDES program.

The "National Water Quality Inventory, 1990 Report to Congress" provides a general assessment of water quality based on biennial reports submitted by the States under section 305(b) of the CWA. In preparing section 305(b) Reports, the States were asked to indicate the fraction of the States' waters that were assessed, as well as the fraction of the States' waters that were fully supporting, partly supporting, or not supporting designated uses. The Report indicates that of the rivers, lakes, and estuaries that were assessed by States (approximately one-third of stream miles, one-half of lake acres and three-quarters of estuarine waters), roughly 60 percent to 70 percent are supporting the uses for which they are designated. For waters with use impairments, States were asked to determine impacts due to diffuse sources (agricultural and urban runoff and other categories of diffuse sources), municipal sewage, industrial (process) wastewaters, combined sewer overflows, and natural sources, and then to combine impacts to arrive at estimates of the relative percentage of State waters affected by each source. In this manner, the relative importance of the various sources of pollution causing use impairments was assessed and weighted national averages were calculated.

Based on 51 States and Territories that provided information on sources of pollution, the Assessment also concluded that pollution from diffuse sources such as runoff from agricultural, urban areas, construction sites, land disposal activities, and resource extraction activities is cited by the States as the leading cause of water quality impairment.¹ Diffuse sources appear to be increasingly important contributors of use impairment as discharges of industrial process wastewaters and municipal sewage plants come under control and intensified data collection efforts provide additional information. Some examples where use impairments are cited as being caused by diffuse sources include: Rivers and streams, where 11 percent are caused by separate storm sewers, 6 percent are caused by construction and 14 percent are caused by resource extraction; lakes, where 28 percent are caused by separate storm sewers and 24 percent are caused by land disposal; the Great Lakes shoreline, where 6 percent are caused by separate storm sewers, and 41 percent are caused by land disposal; for estuaries where, 30 percent are caused by separate storm sewers; and for coastal areas, where 36 percent are caused by separate storm sewers and 37 percent are caused by land disposal.

The States conducted a more comprehensive study of diffuse pollution sources under the sponsorship of the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) and EPA. The study resulted in the report "America's Clean Water—The States' Nonpoint Source Assessment, 1985" which indicated that 38 States reported urban runoff as a major cause of beneficial use impairment. In addition, 21 States reported construction site runoff as a major cause of use impairment.

Studies conducted by the National Oceanic and Atmospheric Administration (NOAA)² indicate that urban runoff is a major pollutant source which adversely affects shellfish growing waters. The NOAA studies identified urban runoff as affecting over 578,000 acres of shellfish growing waters on the East Coast (39 percent of harvest-

limited area); 2,000,000 acres of shellfish growing waters in the Gulf of Mexico (59% of the harvest-limited area); and 130,000 acres of shellfish growing waters on the West Coast (52% of harvest-limited areas).

B. Water Quality Act of 1987

The Water Quality Act (WQA) of 1987 added section 402(p) to the CWA to establish a comprehensive two phased approach for EPA to address storm water discharges. Section 402(p)(1) provides that EPA or NPDES States cannot require a permit for certain storm water discharges until October 1, 1992, except for storm water discharges listed under section 402(p)(2). Section 402(p)(2) lists five types of storm water discharges which are covered under Phase I of the program and are required to obtain a permit before October 1, 1992:

(A) A discharge with respect to which a permit has been issued prior to February 4, 1987;

(B) A discharge associated with industrial activity;

(C) A discharge from a municipal separate storm sewer system serving a population of 250,000 or more;

(D) A discharge from a municipal separate storm sewer system serving a population of 100,000 or more, but less than 250,000; or

(E) A discharge for which the Administrator or the State, as the case may be, determines that the storm water discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to the waters of the United States.

The WQA clarified and amended the requirements for permits for storm water discharges in the new CWA section 402(p)(3). The Act clarified that permits for discharges associated with industrial activity must meet all of the applicable provisions of section 402 and section 301 including BAT/BCT technology-based requirements and that permits for discharges from municipal separate storm sewer must meet a new statutory standard requiring controls to reduce the discharge of pollutants to the maximum extent practicable (MEP). As with all point source discharges under the CWA, storm water discharges are subject to applicable water quality-based standards.

Section 402(p)(4) establishes deadlines to implement the permit program for: Storm water discharges associated with industrial activity; discharges from large municipal separate storm sewer systems (systems serving a population of 250,000 or more); and discharges from medium municipal

separate storm sewer systems (systems serving a population of 100,000 or more but less than 250,000). This section of the Act specifies deadlines for EPA to promulgate permit application requirements, applicants to submit permit applications, EPA and authorized NPDES States to issue NPDES permits, and for permit compliance for the identified storm water discharges.

NPDES permits for all other storm water discharges fall under phase II of the program, and cannot be required until October 1, 1992, unless a permit for the discharge was issued prior to the date of enactment of the WQA (i.e., February 4, 1987), or the discharge is determined to be a significant contributor of pollutants to waters of the United States or is contributing to a violation of water quality standards.

EPA, in consultation with the States, is required to conduct two studies on phase II storm water discharges that are in the class of discharges for which EPA and NPDES States cannot require permits prior to October 1, 1992. The first study will identify those storm water discharges or classes of storm water discharges addressed by phase II and determine, to the maximum extent practicable, the nature and extent of pollutants in such discharges. The second study is for the purpose of establishing procedures and methods to control phase II storm water discharges to the extent necessary to mitigate impacts on water quality. Based on the two studies, EPA in consultation with State and local officials, is required to issue regulations by no later than October 1, 1992, which designate classes of phase II storm water discharges to be regulated to protect water quality and establish a comprehensive program to regulate such designated sources. This program must establish, at a minimum, (A) priorities, (B) requirements for State storm water management programs, and (C) expeditious deadlines. The program may include performance standards, guidelines, guidance, and management practices and treatment requirements, as appropriate.

C. November 16, 1990, Permit Application Regulations

EPA promulgated permit application regulations for the storm water discharges identified under section 402(p)(2) (B), (C), and (D) of the CWA, including storm water discharges associated with industrial activity, on November 16, 1990 (55 FR 47990). The November 16, 1990 regulations address requirements, including deadlines, for two sets of application procedures for storm water discharges associated with

¹ Major classes of diffuse sources that include, in part, storm water point source discharges are: Urban runoff conveyances, construction sites, agriculture (feedlots), resource extraction sites, and land disposal facilities.

² See "The Quality of Shellfish Growing Waters on the East Coast of the United States", NOAA, 1988; "The Quality of Shellfish Growing Waters in the Gulf of Mexico", NOAA, 1988; and "The Quality of Shellfish Growing Waters on the West Coast of the United States", NOAA, 1990.

Industrial activity: Individual permit applications and group applications. In addition, the notice recognizes a third set of application procedures for storm water discharges associated with industrial activity: Those associated with general permits. With these requirements, EPA is attempting to implement a flexible, cost-effective approach for storm water permit applications.

The requirements for individual applications for storm water discharges associated with industrial activity are set forth at 40 CFR 122.26(c)(1). Generally, the applicant must provide comprehensive facility specific narrative information including: (1) A site map; (2) an estimate of impervious areas; (3) the identification of significant materials treated or stored on site together with associated materials management and disposal practices; (4) the location and description of existing structural and non-structural controls to reduce pollutants in storm water runoff; (5) a certification that all storm water outfalls have been evaluated for any unpermitted non-storm water discharges; and (6) any existing information regarding significant leaks or spills of toxic or hazardous pollutants within three years prior to application submittal. In addition, an individual application must include quantitative analytical data based on samples collected on site during storm events. Under § 122.26(e)(1) of the November 16, 1990 rule, individual applications were to have been submitted by November 18, 1991.³

The group application process allows for facilities with similar storm water discharges to file a single two part permit application. Part 1 of a group application includes a list of the facilities applying, a narrative description summarizing the industrial activities of participants of the group, a list of significant materials exposed to precipitation that are stored by participants and material management practices employed to diminish contact of these materials by precipitation (see 40 CFR 122.26(c)(2)(i)). Under the November 16, 1990 regulations, Part 1 of the group application was to be submitted to EPA no later than March 18, 1991.⁴ The regulation provides that

EPA has a 60 day period after receipt to review the part 1 applications and notify the groups as to whether they have been approved or denied as a properly constituted "group" for purposes of this alternative application process. Part 2 of the group application contains detailed information, including sampling data, on roughly ten percent of the facilities in the group (today's notice contains a more detailed description clarifying the requirements of 40 CFR 122.26(c)(2)(ii)). Under the November 16, 1990 regulations, part 2 applications were to be submitted no later than 12 months after the date of approval of the part 1 application. (Revisions to this deadline are discussed below). Also under the November 16, 1990 regulation, facilities that are rejected as members of a group were to have 12 months from the date they receive notification of their rejection to file an individual permit application (or obtain coverage under an appropriate general permit).⁵

The group application process has been designed by EPA as a one-time administrative procedure to ease the burden on the regulated community and permitting authorities in the initial stage of the storm water program.

The third application procedure entails seeking coverage under a general permit for storm water discharges associated with industrial activity. Dischargers covered by a general permit are excluded under 40 CFR 122.21(a) from requirements to submit individual or group permit applications. Conditions for filing an application to be covered by a general permit (typically called a Notice of Intent (NOI)) are established on a case-by-case basis. As discussed in more detail below, today's notice establishes final minimum requirements for general permit NOI submissions.

The November 16, 1990 regulations also establish a two part application process for discharges from municipal separate storm sewer systems serving a population of 100,000 or more. The regulations list 220 cities and counties that are defined as having municipal separate storm sewer systems serving a population of 100,000 or more and allows for case-by-case designations of other municipal separate storm sewers to be part of these systems (55 FR 48073, 48074). The regulations provide that part 1 applications for discharges from large municipal separate storm sewer systems

(systems serving a population of 250,000 or more) were due November 18, 1991. Part 2 applications for discharges from large systems are due on November 18, 1992. Part 1 applications for discharges from medium municipal separate storm sewer systems (systems serving a population of 100,000 or more, but less than 250,000) are due May 18, 1992. Part 2 applications for discharges from medium systems are due on May 18, 1993. Today's rulemaking does not address, modify or change application requirements or deadlines established by the November 16, 1990 regulations for discharges from municipal separate storm sewer systems serving a population of 100,000 or more.

D. August 16, 1991 Notice

On August 16, 1991, EPA published a notice (58 FR 40948) requesting public comment on four major areas:

(1) EPA's long-term permit issuance strategy for storm water discharges associated with industrial activity;

(2) Proposed modifications to 40 CFR 122.44(i)(2) addressing minimum monitoring and reporting requirements for NPDES permits for storm water discharges associated with industrial activity;

(3) Proposed modifications to 40 CFR 122.28(b)(2) addressing minimum notice of intent requirements for general permits;

(4) Draft baseline general permits for storm water discharges associated with industrial activity in 12 States (MA, ME, NH, FL, LA, TX, OK, NM, SD, AZ, AK, ID) and 6 Territories (District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and the Trust Territory of the Pacific Islands) without authorized NPDES State programs; on Indian lands in AL, CA, GA, KY, MI, MN, MS, MT, NC, ND, NY, NV, SC, TN, UT, WI, and WY; located within Federal facilities and Indian lands in CO and WA; and located within Federal facilities in Delaware.

One of the central purposes of today's notice is to address and/or take final action on the first three items listed above. Each of these three items is discussed in more detail below. The fourth component of the August 16, 1991 proposal involving draft baseline general permits for storm water will be addressed in a separate rulemaking presently scheduled for promulgation in late spring of this year.

E. November 5, 1991 Proposal

On November 5, 1991, (56 FR 56555), as a result of issues and concerns raised

³ The deadline for submitting an individual permit application for storm water discharges associated with industrial activity was extended from November 18, 1991 to October 1, 1992 (56 FR 56548, (November 5, 1991)).

⁴ The deadline for submitting part 1 of the group application was extended from March 18, 1991 to September 30, 1991 (56 FR 12086 (March 21, 1991)).

⁵ The deadline for a facility that is rejected as a member of a group application to submit an individual permit application has been revised to provide that an individual application must be submitted no later than 12 months after the date of receipt of the notice of rejection or October 1, 1992, whichever comes first. (56 FR 56549, (November 5, 1991)).

in comments on the March 21, 1991 proposed deadline extensions, EPA requested comments on extending the deadline for submitting part 2 of the group application from May 18, 1992 to October 1, 1992. In the November 5, 1991 notice, the Agency indicated that this extension would provide an appropriate opportunity to conduct sampling to support the part 2 application and would allow for permit issuing agencies to issue general permits.

F. Intermodal Surface Transportation Efficiency Act of 1991

On December 18, 1991, the President signed the Intermodal Surface Transportation Efficiency Act (or Transportation Act) of 1991, into law. Section 1068 of the Transportation Act addresses NPDES permit application deadlines for storm water discharges associated with industrial activity from facilities that are owned or operated by municipalities.

Section 1068(b)(1) of the Transportation Act provides that EPA shall require individual permit applications for storm water discharges associated with industrial activity that are owned or operated by municipalities on or before October 1, 1992; except that any municipality that has participated in a timely part 1 group application and that is denied participation in the group application shall not be required to submit an individual application until the 180th day following the date on which the denial is made.

Section 1068(b)(2) of the Transportation Act provides that part 1 of group applications for storm water discharges associated with industrial activity that are owned or operated by a municipality with a population of 250,000 or more shall be required on or before September 30, 1991, and part 2 applications on or before October 1, 1992. Part 1 of group applications for storm water discharges associated with industrial activity that are owned or operated by a municipality with a population of less than 250,000 shall be required on or before May 18, 1992, and part 2 applications on or before May 17, 1993.

Section 1068(c) of the Transportation Act provides that EPA shall not require any municipality with a population of less than 100,000 to apply for or obtain a permit for any storm water discharge associated with an industrial activity other than an airport, powerplant, or uncontrolled sanitary landfill owned or operated by such municipality before October 1, 1992, unless a permit is required by either section 402(p)(2)(A) or (E) of the CWA. Section 1068(d) of the Transportation Act defines uncontrolled

sanitary landfill to mean a landfill or open dump, whether open or closed, that does not meet the requirements for runoff and runoff controls established pursuant to subtitle D of the Solid Waste Disposal Act.

Section 1068(e) of the Transportation Act clarifies that the statutory deadlines for group and individual applications outlined above do not affect any storm water discharge that is subject to the provisions of either section 402(p)(2)(A) or 402(p)(2)(E) of the CWA. Section 402(p)(2)(A) of the CWA addresses storm water discharges that had an NPDES permit prior to February 4, 1987. Section 402(p)(2)(E) of the CWA addresses storm water discharges that EPA or the State, as the case may be, determines that the storm water discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to the waters of the United States. As discussed in more detail below, today's rule codifies the application provisions of Section 1068 of the Transportation Act.

II. Today's Rule

Today's rule addresses the following:

- (1) EPA's long-term permit issuance strategy for storm water discharges associated with industrial activity;
- (2) Modifications to 40 CFR 122.44(i)(2) addressing minimum monitoring and reporting requirements for NPDES permits for storm water discharges associated with industrial activity;
- (3) Modifications to 40 CFR 122.28(b)(2) addressing minimum notice of intent requirements for general permits;
- (4) Modifications to 40 CFR 122.26(e) to establish a deadline of October 1, 1992 for part 2 of group applications for storm water discharges associated with industrial activity;
- (5) An amendment to 40 CFR 122.26(c)(2) to clarify the minimum number of facilities in a group that must submit sampling information in part 2 of a group application; and
- (6) Modifications to 40 CFR 122.26(e) to codify portions of Section 1068 of the Transportation Act of 1991.

A. Long Term Permit Issuance Strategy

Many of the initial concerns regarding the NPDES storm water program focussed on adapting the existing NPDES permit program to effectively address the large number of storm water discharges associated with industrial activity. Potential issues with implementing the NPDES program for storm water discharges associated with industrial activity are raised not only by the number of industrial facilities subject to the program, but also by the

challenges presented in identifying and assessing appropriate technologies for preventing and reducing pollutants in different classes of storm water and the differences in the nature and extent of storm water discharges.

Based on a consideration of comments from authorized NPDES States, municipalities, industrial facilities and environmental groups on the permitting framework and permit application requirements for storm water discharges associated with industrial activity, EPA has developed a strategy for permitting storm water discharges associated with industrial activity that will serve as a foundation for future program development and technology transfer. The Agency intends to use the flexibility provided by the CWA⁴ in designing a workable and reasonable permitting system.

In an action related to this rulemaking, EPA, in conjunction with the Rennselaerville Institute, has initiated a project to develop recommendations for streamlining and improving the existing permit issuance and compliance processes for storm water discharges. In addition, the project will examine whether and how the currently unregulated phase II storm water discharges should be addressed. EPA will be issuing a Federal Register notice to announce a series of meetings that will address these phase II storm water discharges.

The strategy in today's action consists of two major components, a tiered framework for developing permitting priorities and a framework for the development of State Storm Water Permitting Plans.

1. Permitting Priorities

The Agency believes that most storm water permitting activities can be described in terms of the following four classes of activities:

- *Tier I—Baseline Permitting:* One or more general permits will be developed initially to cover the majority of storm water discharges associated with industrial activity;

⁴ The Court in *NRDC v. Train*, 390 F. Supp. 1369 (D.D.C. 1975) *aff'd*, *NRDC v. Costle*, 568 F.2d 1369 (D.C. Cir. 1977), has recognized the administrative burden placed on the Agency by requiring individual permits for a large number of storm water discharges. These courts have affirmed EPA's discretion to use certain administrative devices, such as area permits or general permits to help manage its workload. In addition, the courts have recognized flexibility in the type of permit conditions that are established, including requirements for best management practices. See August 16, 1991 (56 FR 40948) for further discussion of the use of general permits for storm water discharges.

- **Tier II—Watershed Permitting:** Facilities within watersheds shown to be adversely impacted by storm water discharges associated with industrial activity will be targeted for individual or watershed-specific general permits;

- **Tier III—Industry-Specific Permitting:** Specific industry categories will be targeted for individual or industry-specific general permits; and

- **Tier IV—Facility-Specific Permitting:** A variety of factors will be used to target specific facilities for individual permits.

These four classes of activities will be implemented over time and will reflect priorities within given States. In most States, tier I activities, issuance of baseline permits, will be the initial starting point. As priorities and risks within the State are evaluated, classes of storm water discharges or individual storm water discharges will be identified for tier II, III or IV permitting activities. Usually a storm water discharge or a class of discharges will not go through a sequence that involves all four of the tiers associated with the strategy, but may for example, go from initial coverage under a Tier I baseline permit to coverage under a tier III industry-specific general permit.

a. **Tier I—Baseline permitting.** Tier I general permits can initially cover the majority of storm water discharges associated with industrial activity in a State. Consolidating many sources under a general permit greatly reduces the administrative burden of issuing permits for storm water discharges associated with industrial activity. Under this approach:

- Pollution prevention and/or best management practices will be established for discharges covered by the permit;

- Facilities whose discharges are covered by the permit will be certain of their legal responsibilities and have an opportunity to comply with the CWA;

- EPA and authorized NPDES States will begin to collect and review data on storm water discharges from priority industries, thereby supporting subsequent permitting activities;

- The public, including municipal operators of municipal separate storm sewers which may receive storm water discharges associated with industrial activity, will have the opportunity to review data and reports developed by industrial permittees under section 308(b) of the CWA;

- The baseline permits will provide a basis for coordinating requirements for storm water discharges associated with industrial activity with requirements of municipal storm water management programs in permits for discharges from

municipal separate storm sewer systems.

- The baseline permits will provide a basis for bringing selected enforcement actions; and

- The baseline permit, along with the State storm water permitting plans (discussed below), will provide a focus for public comment on draft permits and subsequent phases of the permitting strategy for storm water discharges.

Initially, the coverage of the baseline permits will be broad. However, it is anticipated that coverage will become more specific and targeted as other permits are issued for storm water discharges associated with industrial activity pursuant to tier II through tier IV activities. The Agency believes that tier I permits can establish the appropriate balance between monitoring requirements and implementable controls that will initiate facility-specific controls and provide sufficient data for compliance monitoring and future program development. Baseline general permits are flexible enough to allow the inclusion of tier II, III or IV types of permit conditions, such as industry specific monitoring or control conditions into the baseline general permit.

b. **Tier II—Watershed permitting.** Issuing permits on a watershed basis is potentially a desirable way to cost effectively use Agency resources to satisfactorily address risk. Facilities within watersheds shown to be adversely impacted by storm water discharges associated with industrial activity will be targeted for individual and more specific general permitting activities. This process can be initiated by identifying receiving waters (or segments of receiving waters) where storm water discharges associated with industrial activity have been identified as a source of use impairment or are suspected to be contributing to use impairment. Information developed under sections 304(f), 305(b), and 319(a) of the CWA, along with information from other sources (including information developed under the baseline general permits for storm water discharges), can be used in evaluating impacts on receiving waters. This information may identify classes of storm water discharges that are of particular concern and portions of watersheds where the sources of concern are located. Appropriate classes of storm water discharges in these locations can be targeted for additional permit conditions which may provide for additional information to characterize the discharge (e.g., additional monitoring and reporting requirements) or, where appropriate, for more stringent controls.

Information gathered under initial permits for storm water discharges as well as information from other sources can be used to reassess water quality-based controls. As discussed in more detail below, State storm water permitting strategies are expected to have a major role in this process.

c. **Tier III—Industry-specific permitting.** Specific industry categories will be targeted for individual or industry-specific general permits. These permits will allow permitting authorities to focus attention and resources on industry categories of particular concern and/or industry categories where tailored requirements are appropriate. The Agency will work with the States to develop model permits for selected classes of industrial storm water discharges. In addition, the group application process adopted in the November 16, 1990 regulation, (55 FR 47990) will provide an additional mechanism for developing industry-specific general permits. Group applications that are received can be used to develop model permits for the appropriate industries.

d. **Tier IV—Facility-specific permitting.** Individual permits will be appropriate for some storm water discharges in addition to those identified under tier II and tier III activities. Individual permits should be issued where warranted by the environmental risks of the discharge, the need for additional and more complex individual control mechanisms, a facility's compliance history or the potential to consolidate permit requirements for a particular facility. For example, individual NPDES permits for facilities with process discharges should be expanded during the normal process of permit reissuance to cover storm water discharges from the facility. This provides an opportunity to develop more facility specific individual controls without greatly increasing incremental administrative burdens.

2. State Storm Water Permitting Plans

EPA believes that State Storm Water Permitting Plans provide an effective basis for ensuring adequate public input, evaluating program activities and priorities, and providing program oversight during the earlier stages of program development. These plans will provide an effective coordination and tracking mechanism for evaluating the initial permitting activities for storm water discharges required under section 402(p) of the CWA. In addition, State Storm Water Permitting Plans will provide a framework within which to coordinate and assess the relationship

and appropriate priorities between controlling storm water discharges under the NPDES program with other efforts to address diffuse sources of water pollution, such as State Nonpoint Source Control Programs developed under section 319 of the CWA.

EPA has outlined below a number of the components and elements of State Storm Water Permitting Plans which it believes are essential to assure successful implementation of the storm water initiative called for in section 402(p) of the CWA. At a minimum, State Storm Water Permitting Plans should include a description of an oversight strategy regarding the implementation of NPDES permits for discharges from large and medium municipal separate storm sewer systems; storm water discharges associated with industrial activity; and case-by-case designations of storm water discharges needing a permit. Plans should be developed for each State by the NPDES authority (e.g. either an authorized NPDES State, or, where a State does not have base program authorization, by EPA).

EPA is requesting that draft State Storm Water Permitting Plans be provided to the Office of Wastewater Enforcement and Compliance by April 3, 1995. EPA anticipates that States will update these plans on a regular basis. These plans will assist EPA in technology transfer activities with other States, evaluating the progress of States in implementing storm water permitting activities, and in identifying both successes and difficulties with ongoing program implementation. The initial State Storm Water Permitting Plan will also entail preliminary planning, assessment, and tracking that will be essential to developing phase II State Storm Water Management Programs called for under section 402(p)(6) of the CWA.

The basic framework for the Plan should include the following elements on a State-wide basis:

Municipal Separate Storm Sewer Systems

- A list of municipal separate storm sewer systems serving a population of 100,000 or more within the State;
- For systems identified, a summary of the estimated pollutant loadings as initially provided in the permit application for such discharges, and as otherwise updated;
- The status of the issuance of permits for discharges from municipal separate storm sewer systems serving a population of 100,000 or more, including any NPDES permit number for such discharges; and

- An outline of the major components of municipal storm water management programs required under permits for discharges from municipal separate storm sewer systems, including a detailed description of the implementation of any innovative or model municipal program components.

Storm Water Discharges Associated With Industrial Activity

- A description of the status of activities to issue and implement baseline general permits, including a copy of any final general permit for storm water discharges associated with industrial activity;
- A list of categories of industrial facilities that have storm water discharges associated with industrial activity that are being considered for industry-specific storm water general permits;
- A description of procedures, including activities conducted under any general permit (such as inspections, review of notices of intent or review of monitoring reports) to identify specific storm water discharges associated with industrial activity that are appropriate for individual permits;
- A description of how permits for discharges from municipal separate storm sewer systems require the development of municipal storm water management programs addressing the control of pollutants in storm water discharges associated with industrial activity.

Impacted Waters

- A description of procedures to identify receiving waters where discharges from municipal separate storm sewers, storm water discharges associated with industrial activity, or any other class of storm water discharges are, or have the potential to, cause or contribute to a violation of a water quality standard, including a list of waters identified by these procedures.
- A plan to evaluate improvements to water quality resulting from controlling storm water discharges.

Case-by-Case Designations.

- A description of procedures to identify storm water discharges (other than those currently subject to requirements for obtaining a permit) that contribute to a violation of a water quality standard or significantly contribute pollutants to the waters of the United States.
- A list of storm water discharges (and associated receiving waters) that have been designated or are being considered for designation under section

402(p)(2)(E) of the CWA as needing a permit.

EPA strongly encourages public participation and comment, including efforts to coordinate with appropriate Federal and State land managers, at the State level during the development of these plans.

These initial State storm water plan components will assist the implementation of permitting efforts for storm water discharges associated with industrial activity and other priority storm water discharges by creating a framework for planning and prioritizing State storm water permitting activities, tracking State permit issuance efforts, and providing EPA information for technology transfer purposes among NPDES permitting authorities and other State agencies. The State Storm Water Permitting Plans will provide a framework for implementing the tiered long-term strategy for permitting storm water discharges associated with industrial activity, and so noted above, it will assure preliminary State-wide planning and assessment that will be essential to developing phase II State Storm Water Management Programs required under section 402(p)(6) of the CWA. In reviewing State Storm Water Permitting Plans, EPA will coordinate with Federal Agencies that may be affected by components of the plans.

3. States without NPDES General Permit Authority

As noted, the issuance of general permits is an important component in the recommended permit issuing strategy. Presently 38 States (and 1 territory) have been authorized to implement the NPDES permit program. However, only 29 of these States have been authorized to issue general permits. If NPDES authority is not obtained for any of the remaining 10 States, individual NPDES permits based on the submission of individual or group applications will have to be issued for storm water discharges associated with industrial activity. It is important to emphasize that under the CWA, EPA cannot issue general permits in States that have been authorized to administer the base NPDES program.

EPA strongly recommends authorized NPDES States without general permit authority to obtain general permit authority as soon as possible. EPA is currently working with these States to provide technical assistance and support and to expedite the authorization process.

4. Response to Comments

a. *Tiered priorities.* Many commenters agreed that EPA and authorized NPDES States should prioritize permit issuance efforts for storm water discharges associated with industrial activity, and indicated that the tiered priorities identified by EPA generally establish an appropriate conceptual framework for such efforts. These commenters generally indicated that the four tier strategy provides appropriate opportunities to identify high-risk discharges. In response, the Agency agrees and is retaining the four tiered set of priorities as discussed in the August 16, 1991 proposal.

Some commenters indicated that they thought EPA and authorized NPDES States should be bound to implementing the tiered priorities consecutively in the order reflected by the four tiers. These commenters indicated that the draft general permits noticed on August 16, 1991 by EPA violated the tiered priority approach because the permits contained some permit conditions which were above a tier I baseline set of pollution prevention measures. EPA disagrees with these comments. The Agency wants to clarify that it only intends the four tiered set of priorities to be used as a general conceptual framework which can be used to describe efforts to issue permits. The strategy for setting storm water permit issuance priorities is not intended to be a set of regulatory requirements binding on EPA, States, or industrial dischargers. Articulating tiered priorities does not legally restrict conditions in permits issued by EPA or authorized NPDES States. Rather all NPDES permits, including permits for storm water discharges associated with industrial activity, must be in compliance with sections 301 and 402 of the CWA. A major purpose of articulating tiered priorities is to assist in identifying and developing appropriate permit conditions for high-risk facilities. Tier I baseline general permits which have some of the characteristics of tier II or III permits are consistent with these objectives.

b. *State Plans.* Some States supported the concept of Plans, but were concerned that scheduling plan development one year after the date of today's rule would hinder the initial development of storm water programs in a number of States. These commenters indicated that the NPDES storm water program would be in its initial stage of implementation and authorized NPDES States would be busy conducting a number of critical activities such as obtaining general permit authority, issuing baseline general permits, and

issuing permits for discharges from large and medium municipal separate storm sewer systems. They indicated that these activities could be disrupted if States placed top priority on developing and submitting plans within a year of today's action. EPA agrees with these concerns, and believes that while development of these plans should begin early in the storm water permit issuance process to help guide implementation, draft plans do not need to be prepared for submission until April 3, 1995.

One State stressed that permitting plans were necessary to assure national equitability and prevent economic disincentives in States with progressive storm water management programs. EPA believes that one of its goals in overseeing the development of the NPDES program is to ensure that NPDES permits for storm water discharges reflect the requirements of the CWA in an equitable manner that reflects the technology-based and water quality-based requirements of the CWA. At the same time, the Agency recognizes the need to provide sufficient regulatory flexibility to allow States to make rational and reasonable permitting decisions. For example, today's rule provides permit writers with additional flexibility to target high risk discharges and establish group or facility specific monitoring and reporting requirements in NPDES permits for storm water discharges associated with industrial activity. In addition, permit conditions for most classes of storm water discharges will be established on a case-by-case basis. Nonetheless, the Agency agrees with the commenter that State Storm Water Permitting Plans can provide an important tool to ensure that NPDES storm water programs in different States reflect pollution control requirements consistent with the CWA while maintaining the adequate flexibility necessary to successfully implement the NPDES storm water program.

Several authorized NPDES States did not support the idea of State Storm Water Permitting Plans, but rather indicated that annual EPA/State agreements could be used as a tool for oversight of the NPDES storm water program. In response, the Agency believes that the approach in the Plans is consistent with and can be implemented as a component of annual EPA/State agreements if there is an adequate level of detail and specificity and the State and EPA Region agree on including the elements noted above as part of the annual oversight process. The Agency believes that by publishing a framework for these Plans, it will

provide States with notice of necessary Plan elements, provide a nationally consistent approach for evaluating program progress, facilitate technology transfer activities, encourage public participation, and ensure that risks are evaluated in the context of the entire NPDES storm water program.

In the August 16, 1991 notice, the Agency requested comments on whether the guidelines for Plans should be made requirements that are incorporated into EPA regulations, or remain non-binding recommendations for States. Most of the commenters that responded to this issue urged EPA to make the guidelines for Plans non-binding recommendations for the States. While EPA notes that it may require preparation of such Plans pursuant to Section 402(p)(6) of the CWA, the Agency agrees with the commenters that establishing guidelines for Phase I storm water permitting plans as non-binding recommendations provides an amount of flexibility that is appropriate at this point in the program's development. Therefore, the Agency is clarifying that the guidelines for Phase I Plans and the request to prepare and submit Plans to EPA are non-binding recommendations at this point in time.

B. Minimum Monitoring and Reporting Requirements for Storm Water Discharges

Current NPDES regulations at 40 CFR 122.44(i)(2) provide that all NPDES permits are to establish requirements to report monitoring results with a frequency dependent on the nature and effect of the discharge, but in no case less than once a year. In the August 16, 1991 proposal, EPA requested comment on six major options for modifying 40 CFR 122.44(i)(2) to provide minimum monitoring and reporting requirements specifically addressing storm water discharges associated with industrial activity.

In the August 16, 1991 proposal, the Agency identified a number of factors that it would consider when evaluating this issue:

Difficulties in Sample Collection— Collection of storm water samples may pose a number of potential difficulties. These difficulties include determining when a discharge will occur, safety considerations, the potential for a multiple discharge points at a single facility, the intermittent nature of the event, the limited number of events that occur in some parts of the country, and variability in flow rates.

Variability of Data— The types and concentrations of pollutants in storm water discharges associated with

industrial activity depend on a number of factors, including the nature of industrial activities occurring at the site, the nature of the precipitation event generating the discharge, and the time period from the last storm. Variations in these parameters at a site may result in variation from event to event in the concentrations and types of pollutants in a given discharge.

Types of Permit Conditions—Permits for industrial process discharges and discharges from POTWs traditionally have incorporated numeric and/or toxicity effluent limitations as conditions. Monitoring reports for these discharges provide a direct indication whether the discharge complies with permit conditions. However, it is anticipated that permits for storm water dischargers will contain a variety of types of controls. While numeric or toxicity limitations are expected to be appropriate for some storm water discharges, permits for other storm water discharges are expected to contain requirements to implement best management or pollution prevention practices. In these cases, discharge sampling information may not provide as direct a link to compliance with permit conditions. However, effluent monitoring data can still play an important role in identifying priority facilities, providing information on sources and types of pollutants which can be evaluated when designing or modifying best management or pollution prevention practices, and evaluating the effectiveness of best management practices and pollution prevention measures.

Administrative Burdens on Permitting Agencies—Requiring each facility that discharges storm water associated with industrial activity to submit monitoring data at least annually would result in a significant increase in the number of discharge monitoring reports received by EPA Regions and authorized NPDES States.¹ Receiving annual monitoring reports containing complex technical information from each facility with a storm water discharge associated with industrial activity would require a significant amount of permitting resources dedicated to reviewing and filing these reports.

¹ EPA estimates that if all facilities with storm water discharges associated with industrial activity other than oil and gas facilities and inactive mining operations were required to submit a discharge monitoring report annually, almost 15% of all discharge monitoring reports collected annually under the NPDES program would be for storm water discharges associated with industrial activity.

Focused Permitting Efforts

The long-term permitting strategy discussed earlier in today's notice provides for a flexible, risk-based system for issuing permits and targeting priority discharges. Flexibility has been incorporated into the strategy to facilitate efforts by EPA and authorized NPDES States to identify priority discharges and conduct permit issuance activities which reflect Regional and State priorities. Discharge sampling data from targeted facilities can support the development of priorities and can be used to assist in assessing the achievement of water management goals. As priorities and risks within a State are identified and evaluated, classes of facilities will be targeted for more specific permit issuance activities (tiers II, III and IV of the strategy).

1. Overview of Proposed Options and Comments

In the August 16, 1991 proposal, EPA identified six major options (plus a no change option) for establishing minimum monitoring requirements in NPDES permits for storm water discharges associated with industrial activity. These options only addressed minimum requirements for discharge monitoring in NPDES permits. All options retained authority for NPDES permit authorities to require more stringent monitoring requirements where appropriate. The six options (plus the no change option) were as follows:

No Change Option: Case-by-case monitoring conditions in permits for storm water discharges, with a minimum requirement to report monitoring results at least annually.

Option 1: Case-by-case monitoring conditions in permits for storm water discharges with a minimum requirement to report monitoring results at least twice per permit term.

Option 2: Case-by-case monitoring conditions in permits for storm water discharges with a minimum requirement that facilities conduct annual sampling. Facilities would not be required to report monitoring information unless the information was requested in a permit or by the Director, but would be required to retain information.

Option 3: Case-by-case monitoring conditions in permits for storm water discharges with a minimum requirement that facilities (other than those from oil and gas exploration or production operations and inactive mining operations where a past or present mine operator cannot be identified) conduct annual sampling. Facilities would not be required to report information unless the information was requested in a permit

or by the Director, but would be required to retain information. For contaminated storm water discharges from oil and gas exploration or production operations or from inactive mining operations where a past or present mine operator cannot be identified, either case-by-case monitoring conditions in permits for storm water discharges with a minimum requirement of annual sampling (without reporting) or, instead of sampling, a Professional Engineer's (PE) certification attesting that good engineering practices were being employed to meet appropriate permit conditions.

Option 4: Case-by-case monitoring conditions in permits for storm water discharges with a minimum requirement that monitoring reports be submitted at least annually for targeted classes of storm water discharges associated with industrial activity located in the watershed of receiving waters that are sensitive to or impacted by storm water discharges.

Option 5: Case-by-case monitoring conditions in permits for storm water discharges with no minimum requirement to report monitoring results.

Option 6: Case-by-case monitoring conditions in permits for storm water discharges, with a minimum requirement for the first permit for the discharge that monitoring results be reported at least once a year. After a facility has submitted five years of data, monitoring conditions for storm water would be established on a case-by-case basis with no minimum requirement to conduct annual sampling.

In addition, the Agency indicated that it would consider developing a final regulation which combined aspects of several of the articulated options (see August 16, 1991 (56 FR 40957)). The various benefits and concerns with each option were discussed in the August 16, 1991 notice.

The comments received on the options reflected differing opinions regarding the need and use of monitoring in the NPDES storm water program. Some of the comments expressed views on the benefits and drawbacks of different monitoring strategies in different situations. An underlying theme that emerged from the comments was that a number of factors, such as the risk to water quality that different types and classes of storm water discharges associated with industrial activity present, the nature of permit conditions (e.g. such as numeric limitations and best management practices), and the nature of the operation of the facility should be considered when establishing

monitoring conditions in NPDES permits for storm water discharges.

Other commenters suggested that EPA should allow alternatives to monitoring. Some commenters urged the Agency to expand option 3 to allow other classes of facilities in addition to oil and gas operations to obtain a PE certification, to allow facility operators to conduct inspections, or certify compliance with a checklist of pollution prevention measures or best management practices (BMPs) in lieu of sampling. Other commenters suggested that other individuals were as qualified or more qualified than PEs to perform site inspections and that additional flexibility should be provided with regard to the inspection requirement. For example, some commenters indicated that certified construction inspectors were more appropriate for conducting inspections at construction sites than PEs, who might not be familiar with soil and erosion practices or storm water management technologies. Other commenters suggested that site personnel would typically be in the best position to evaluate the implementation of pollution prevention measures and BMPs.

Other comments urged EPA to consider the costs and technical difficulties of sample collection and analysis when establishing minimum monitoring requirements, and encouraged the Agency to consider alternatives to discharge sampling, such as allowing site inspections in lieu of monitoring. In the August 16, 1991 notice, EPA had requested comments on monitoring requirements for inactive mining operations, and some comments specifically addressed this issue.

2. Today's Rule

In response to comments, today's rulemaking adopts an approach that is a combination or hybrid of a number of options identified in the August 16, 1991 proposal, particularly options 3 and 5. The final rule provides for establishing monitoring conditions in NPDES permits for storm water discharges associated with industrial activity on a case-by-case basis. At a minimum, a permit for such a discharge must require the discharger to conduct an annual inspection of the facility site to identify areas contributing to a storm water discharge associated with industrial activity and evaluate whether measures to reduce pollutant loadings identified in a storm water pollution prevention plan are adequate and properly implemented in accordance with the terms of the permit and the plan or whether additional control measures are needed. The discharger must be required to

maintain for a period of three years a record summarizing the results of the inspection and a certification that the facility is in compliance with the plan and the permit, or identifying any incidents of non-compliance. Such report and certification must be signed by a corporate official in accordance with 40 CFR 122.22.

Today's rule establishes a minimum requirement for annual inspections for most storm water discharges associated with industrial activity. The Agency believes that a minimum frequency of at least annual inspections is appropriate to ensure evaluation of changing conditions and practices at a site, (especially those caused by wet weather and winter conditions occurring throughout a year) and to ensure adequate implementation of pollution prevention measures on a regular basis. While option 3 of the August 16, 1991 proposal had requested comment on a minimum frequency of every three years for a PE certification for oil and gas operations and certain inactive sites, the Agency believes that providing additional flexibility in who conducts site inspections will sufficiently lower compliance costs in some cases to allow a higher frequency of inspections to be feasible. As discussed below, the Agency is providing additional flexibility in establishing monitoring or inspection requirements for storm water discharges from inactive mining operations. No commenters on the draft general permits in the August 16, 1991 Federal Register notice specifically indicated that it would be infeasible to comply with requirements in the draft general permits to conduct annual inspections. The Agency believes that a minimum annual frequency of inspections compensates for less formal requirements with respect to specifying who must conduct the inspection. A minimum annual frequency is also consistent with the minimum requirements for discharges other than storm water to report monitoring information at least annually.

A minimum of an annual inspection or report of monitoring results is not required for storm water discharges associated with industrial activity from inactive mining operations where annual inspections are impracticable. Rather, permits for storm water discharges from inactive mining operations may require certification once every three years by a Registered Professional Engineer that the facility is in compliance with the permit, or provide for alternative requirements. This provision will provide additional flexibility to address inactive mine

operations. Mining activities have a somewhat unique history of development and inactive mining sites can be dispersed diffusely in remote, hard to reach locations where employees may typically not be onsite to conduct site evaluations. In addition, the inactive nature of these sites may limit changes to potential for storm water discharges from the site to contain pollutants, thereby warranting less frequent inspections. The Agency anticipates that certification by Professional Engineers may often be appropriate for these sites given the nature of typical controls for these sites, and the limited amount of activity occurring at them. Alternative requirements may be appropriate for storm water discharges from inactive mining operations in some circumstances. For example, storm water discharges from inactive mining operations on Federal lands where an operator cannot be identified present unique circumstances because of the remote nature and high number of sites on large Federally owned areas.

The Agency believes that this rule will provide sufficient flexibility for permit writers to establish monitoring requirements that reflect the potential risk of the discharge and that are appropriately related to the nature of the permit conditions for a discharge. Today's regulatory modification does not preclude discharge sampling and reporting requirements in NPDES permits for storm water discharges associated with industrial activity. While today's rule change provides additional flexibility to establish monitoring requirements, it does not limit the authority of EPA or authorized NPDES States to establish sampling requirements where appropriate based on a consideration of risk or other factors.

The Agency recognizes that different types of permit conditions are appropriate for different types of storm water discharges. Numeric effluent limitations are appropriate for some classes of storm water discharges. End-of-pipe numeric effluent limitations are typically used for some types or classes of storm water discharges associated with industrial activity.* Typically, NPDES permits for these classes of discharges will contain numeric effluent limitations, and sampling requirements will be appropriate for these permits.

* For example, the Agency has issued numeric effluent limitation guidelines for ten classes of discharges that are composed entirely of storm water or of storm water combined with process water.

However, for many other types of storm water discharges associated with industrial activity, NPDES permits for the discharge will require the implementation of pollution prevention measures and/or BMPs. Where permits require the implementation of pollution prevention measures and/or BMPs, and do not establish numeric effluent limitations, conducting inspections to identify sources of pollution and to evaluate whether the pollution prevention measures and/or BMPs required by the permit are being effectively implemented and are in compliance with the terms of the permit may provide a better indication than discharge sampling of whether a facility is complying with the permit. As a result, the Agency believes that today's rule will also reduce discharge sampling burdens on some industrial facilities with storm water discharge permits that require the implementation of pollution prevention measures and BMPs rather than numeric effluent limitations, while providing more effective and efficient environmental benefits.

Today's rule does not affect the manner in which the NPDES regulations address discharges other than storm water associated with industrial activity. The provisions of 40 CFR 122.44(i)(2) will continue to require that NPDES permits for discharges other than storm water associated with industrial activity establish requirements to report monitoring results with a frequency dependent on the nature and effect of the discharge, but in no case less than once a year. In addition, today's rule does not change the manner in which the NPDES regulations address storm water discharges which are subject to an effluent limitation guideline (e.g. a minimum of annual monitoring is still required for these facilities).

3. Response to Comment

Some commenters questioned the value of sampling data for storm water discharges in certain situations. In response, the Agency believes that, in certain instances, storm water discharge monitoring data will play a number of critical roles in the NPDES program. As discussed above, some permits for storm water discharges associated with industrial activity will establish technology or water quality-based numeric limitations. Discharge monitoring reports will be an important means of assessing compliance with these requirements. Discharge monitoring, including monitoring requirements in permits that do not establish numeric limitations, plays a

number of other functions in the permit program.

Discharge monitoring data can be used to assist in the evaluation of the risk of discharges by indicating the types and the concentrations of pollutant parameters in the discharge. Discharge monitoring data can also be used to support the development of future permit conditions and controls, assist in identifying sources of pollutants at a facility, assist in the evaluation of the effectiveness of pollution prevention measures and BMPs, and assist in identifying potential water quality-based impacts. Storm water discharge monitoring data will have an important role, along with other information, in identifying facilities or classes of facilities where tier II, III and IV permit issuance activities are appropriate.

Several commenters offered a number of suggestions for monitoring programs for storm water discharges. In response, EPA generally recognizes that there are a number of innovative and risk-based approaches to developing monitoring strategies for storm water discharges associated with industrial activity. For example, monitoring requirements for storm water discharges associated with industrial activity can be focused on those discharges located in watersheds that are impacted by or sensitive to storm water discharges as proposed in option 4. In order to encourage States to explore efficient, innovative and cost-effective monitoring programs, today's rule provides flexibility to establish different monitoring strategies and does not adopt option 4, although the minimum requirements adopted today do not preclude the use of an option 4 type approach where appropriate. (The same is true for options 1, 2, or 6; EPA or authorized NPDES States retain the flexibility to use these types of approaches on a permit-specific basis). The Agency believes that this approach offers the greatest potential for using permits to generate information on priority storm water discharges that can be used to assist in the development of controls.

Many commenters urged EPA to provide sufficient regulatory flexibility to permit writers to establish discharge sampling and reporting requirements for storm water discharges associated with industrial activity on a case-by-case basis. Many commenters favored establishing discharge sampling requirements in a risk-based manner. A number of these commenters suggested that it was important to sample storm water discharges associated with industrial activity from priority classes

of facilities, but that across-the-board monitoring requirements for all facilities with storm water discharges associated with industrial activity may not be an appropriate or cost-effective use of resources. A number of justifications were provided for favoring a flexible approach including: (1) Regulatory flexibility could allow establishing monitoring and reporting requirements in a risk-based manner; (2) some types of facilities may not be significant contributors of pollutants when they were in compliance with pollution prevention measures or plans; (3) in some situations site inspections would be more appropriate than monitoring for determining permit compliance; (4) EPA and authorized NPDES States have limited ability to effectively review data; (5) the potential burdens on small businesses and facilities in arid climates could be significant; (6) there would be difficulties in characterizing storm water discharges with sampling data; and (7) EPA needs to focus on storm water discharges with the highest risk. Some commenters summarized these concerns by indicating that they believed that for some storm water discharges associated with industrial activity, overly broad discharge monitoring requirements could be counterproductive toward the goals of the program, as significant resources would have to be expended collecting and analyzing discharge samples, thereby limiting available resources at some facilities, such as certain small businesses, to implement measures that would result in the removal of pollutants in their storm water discharges. Other commenters raised concerns regarding sampling storm water discharges from specific classes of industries. For example, representatives of the construction industry contended that monitoring storm water from construction sites has limited usefulness due to the changing nature of the activity.

As discussed above, EPA has designed today's rule to address all of these concerns. Since today's rule provides additional flexibility in the NPDES regulatory framework to establish monitoring requirements for storm water discharges associated with industrial activity, the Agency believes that the concerns raised by the commenters, where appropriate, can be addressed during the permit issuance process under the flexible regulatory framework established by today's rule. In particular, the Agency believes that today's rule, which relies on site inspections as minimum requirements, provides a more efficient and cost-effective approach for evaluating the

effectiveness of permit program implementation. The Agency notes that site inspections are typically an integral part of pollution prevention measures and best management practices for storm water discharges associated with industrial activity.⁹

Option 3 of the August 16, 1991 proposal would have provided flexibility when establishing monitoring requirements for storm water discharges from oil and gas exploration or production operations or from inactive mining operations where a past or present mine operator cannot be identified by allowing either a minimum requirement of annual sampling (without reporting) or, instead of sampling, a Professional Engineer's (PE) certification attesting that good engineering practices were being employed to meet appropriate permit conditions. The Agency requested comment on whether the PE certification was appropriate and whether it should be extended to other classes of facilities.

Some commenters suggested that other individuals were as qualified or more qualified than PEs to perform site inspections and that additional flexibility should be provided with regard to the inspection requirement. For example, some commenters indicated that certified construction inspectors were more appropriate for conducting inspections at construction sites than PEs who might not be familiar with soil and erosion practices or storm water management technologies. Other commenters suggested that site personnel would typically be in the best position to evaluate the implementation of pollution prevention measures and BMPs. In response, today's rule provides flexibility to allow site inspections to be conducted by persons other than PEs. While the Agency believes it is appropriate to require PE certifications in certain circumstances, the approach taken with today's rule will provide additional flexibility in developing these requirements.

A number of commenters suggested that PE certifications were appropriate

for classes of storm water discharges associated with industrial activity other than those from oil and gas operations. These commenters indicated that such a certification could, in many cases, be less burdensome than discharge monitoring, and that such certifications could provide a closer link to compliance with pollution prevention measures and best management practices. As discussed above, today's rule provides that requirements to conduct annual site inspections can be established as minimum monitoring requirements in permits for storm water discharges. The Agency agrees with these comments to the extent that it is convinced that site inspections can provide an appropriate means for evaluating compliance with pollution prevention measures and best management practices for storm water discharges from different types of facilities. In addition, site inspections can be less burdensome than sampling storm water discharges for some facilities. Requiring annual inspections and reviewing documentation as part of routine compliance inspections or at the time of permit reissuance also makes effective use of the limited resources of permit issuance authorities, by allowing permit issuing agencies more time to focus on issues other than receiving, reviewing and filing monitoring data.

Some commenters indicated that EPA and authorized NPDES States should only require facilities to monitor storm water discharges associated with industrial activity where the permit issuing agencies can evaluate the data. The Agency recognizes that EPA and some authorized NPDES States cannot provide adequate resources to ensure that all discharge monitoring data can be inspected. However, the Agency believes that even where discharge monitoring data is not reviewed on an ongoing basis by a permit issuing authority, the data can still be very useful. Facilities which discharge should review their discharge sampling data to identify sources and types of pollutants in discharges, and to evaluate the effectiveness of pollution prevention measures and BMPs. Where an NPDES permit does not require a discharger to report sampling data, EPA or an authorized NPDES State will typically be able to request the data on a case-by-case basis, or request that the data be submitted for consideration prior to permit reissuance.

Some commenters expressed concerns about minimum monitoring requirements for storm water discharges from inactive mining operations. EPA agrees that in some circumstances, discharge sampling

or annual inspections may be particularly burdensome at inactive mining operations, because mining operations often are found in remote areas that are not necessarily supported by infrastructure that allows easy access. In addition, at some inactive mining operations, inspections may not be as integrally related to pollution prevention measures for storm water discharges associated with industrial activity, as pollution prevention measures will not focus on day to day management activities. EPA has modified today's rule accordingly.

A number of commenters addressed the specific monitoring requirements in the draft general permits for storm water discharges associated with industrial activity in the August 16, 1991 notice. The Agency wants to clarify that the amendments to 40 CFR 122.44(i)(2) in today's rule establish minimum monitoring and reporting requirements for NPDES permits for storm water discharges associated with industrial activity. The Agency will respond to comments on the specific monitoring requirements in the draft general permits in the August 16, 1991 notice as part of the fact sheets and/or administrative records for those permits.

C. Application Requirements for General Permits

The provisions of 40 CFR 122.21(a) exclude persons covered by general permits from requirements to submit individual permit applications. Currently, the general permit regulations at 40 CFR 122.28, however, do not address the issue of how a potential permittee is to apply to be covered under a general permit. Rather, conditions for filing an application to be covered by a general permit (typically called a Notice of Intent (NOI)) have been established on a case-by-case basis. NOI requirements established in general permits operate instead of individual permit application requirements for the discharges covered by the general permit.

1. August 16, 1991 Proposal

The August 16, 1991 notice proposed several modifications to the NPDES regulatory framework for general permits. (The proposed changes addressed NPDES general permits for all classes of discharges and sludge disposal, and was not limited to storm water discharges). The proposal addressed procedures for becoming authorized to discharge under a general permit, minimum requirements for NOIs to be covered by a general permit, and deadlines for submitting NOIs.

⁹ For example, EPA noticed draft general permits for storm water discharges associated with industrial activity on August 16, 1991 (56 FR 40946) that would require permittees other than construction activities to conduct visual inspections of designated equipment and plant areas for evidence of, or the potential for, pollutants entering the drainage system and to conduct annual site inspections to verify the description of potential pollutant sources and controls that are being implemented in storm water pollution prevention plans (see parts III.C.4.b.(9) and III.C.4.c. (56 FR 40998)). Under the draft general permits, permittees that operate construction activities are required to inspect all erosion controls on the site at least once every seven calendar days (see part III.C.5.b.(5), 56 FR 40999).

2. Today's Rule

Today's rule finalizes modifications to the NPDES regulatory framework for general permits addressing procedures for becoming authorized to discharge under an NPDES general permit, minimum requirements for notices of intent (NOI) to be covered by a general permit, and deadlines for submitting NOIs.

The regulatory framework provided by today's rule requires that, except for in two situations, an NOI must be submitted by a discharger (or treatment works treating domestic sewage) in order to be authorized to discharge (or in the case of a sludge disposal permit, to engage in a sludge use or disposal practice) under an NPDES general permit. The first situation where an NOI will not have to be submitted to authorize discharges under a general permit is where the Director notifies the discharger that its discharge is covered by the permit. The second situation where NOIs are not required under a general permit is where the Director provides in the general permit that a submission of an NOI is not required, where the Director finds that an NOI requirement is inappropriate for that general permit.

In making a decision that an NOI is inappropriate for a general permit, the Director will consider the type of discharge, the expected nature of the discharge, the potential for toxic and conventional pollutants in the discharges, the expected volume of the discharges, other means of identifying discharges covered by the permit, and the estimated number of discharges to be covered by the permit. Also, in making this decision, the Director is required to describe the reasons for not requiring an NOI in the fact sheet of the general permit. Under today's rule, such a finding could only be made for discharges other than discharges from POTWs, combined sewer overflows (CSOs), primary industrial facilities, and storm water discharges associated with industrial activity. The Agency believes that, given the potential environmental significance and NPDES program priorities associated with discharges from POTWs, CSOs, primary industrial facilities, and storm water discharges associated with industrial activity, it is appropriate to require NOIs in all general permits for these discharges.

Today's rule establishes minimum requirements for NOIs in NPDES general permits at 40 CFR 122.28(b)(2)(iii). This provision requires that the contents of the notice of intent be specified in the general permit and shall require the submission of information necessary for

adequate program implementation, including at a minimum, the legal name and address of the owner or operator, the facility name and address, type of facility or discharges, and the receiving stream(s). This provision specifies minimum NOI requirements. General permits may require that additional information be reported in NOIs where appropriate.

The NOI provisions of this rule allow the Director to establish alternative notice of intent requirements for general permits for storm water discharges associated with industrial activity from inactive mining, inactive oil and gas operations, or inactive landfills occurring on Federal lands where an operator cannot be identified. The Agency is currently developing general permits for storm water discharges from inactive mines, inactive oil and gas operations and inactive landfills occurring on Federal lands. During the process of developing and issuing these permits, EPA will work with authorized NPDES States to determine appropriate NOI requirements for these permits given the unique nature, distribution, and occurrence of these discharges.

Today's rule also provides that general permits requiring the submittal of NOIs shall specify deadlines for submitting notices of intent and the date(s) when a discharger is authorized to discharge under the permit.

The Agency believes that deadlines for submittal of an NOI are an important part of NOI requirements, and that general permits should state when NOIs must be submitted. In addition, the permit should clarify when a discharge is authorized under the permit. In many cases, the Agency anticipates that general permits will provide that a discharger obtains coverage under the general permit after a specified time period passes after the date of submittal of an NOI. This approach will provide the NPDES authority with an opportunity to review the NOI prior to the authorization of the discharge. In other situations, it may be appropriate for general permits to provide that a discharge is authorized as soon as a complete and timely NOI is received.

The August 16, 1991 notice proposed in 40 CFR 122.28(b)(2)(iii) that unless a general permit provided alternative time periods, an NOI was to be submitted 60 days before the date of intended permit coverage. The final rule amends this paragraph such that no default deadline for submission is specified. Rather, the deadline for NOI submission will be established on a permit-specific basis. Today's rule simply requires that this issue be addressed in the general permit,

but leaves the permitting authority this decision of which approach is most appropriate. The approach in the final rule will avoid the confusion that arose with the proposed regulatory language used in the August 16, 1991 notice. Today's rule also requires that NPDES general permits shall specify whether a discharger that has submitted a complete and timely notice of intent to be covered in accordance with the general permit and that is eligible for coverage under the permit, is authorized to discharge either in accordance with the permit upon receipt of the notice of intent by the Director, after a waiting period specified in the general permit, on a date specified in the general permit, or upon receipt of notification of inclusion by the Director. EPA has rewritten the proposed language in 40 CFR 122.28(b)(2)(iv) to make this provision clearer, but has not changed its intent. The Agency believes that the approach taken in the final rule retains the flexibility of the proposal while accomplishing the same purpose.

The Agency is finalizing this regulatory framework for NOIs with NPDES general permits to encourage the use of general permits, to provide for more consistent NOI requirements, and to ensure that dischargers covered by general permits provide appropriate information. Further, the Agency believes that today's regulatory framework provides a regulatory framework that is consistent with existing practices of EPA and authorized NPDES States.

3. Response to Comments

Most commenters addressing the proposed framework for NOIs supported the concept as a useful tool for the NPDES program. Some of these commenters urged EPA to use NOIs as a tool to minimize burdens on the authority issuing permits and reduce costs relative to submitting individual permit applications. Commenters indicated that an additional reason for using NOIs was to assist in clarifying whether a facility was covered by a given general permit.

The Agency agrees with these comments. NOIs serve a number of functions. NOI requirements in general permits can establish a clear accounting of the number of permittees covered by the general permit, the nature of operations at the facility generating the discharge, and their identity, location and receiving waters. NOIs can be used to develop a data base of facility-specific information. NOIs can be used as a screening tool to identify discharges where individual permits are

appropriate. For example, the identification of discharges to receiving waters with impaired water quality can be used to target facilities for priority permitting efforts. Also, the NOI can be used to identify classes of discharges appropriate for more specific general permits covering a more limited set of discharges. The NOI can provide information needed by the Director to notify dischargers that a more specific general permit was issued. The NOI also can identify the permittee to provide a basis to develop and implement enforcement and compliance monitoring strategies and priorities. In addition, the administrative burdens on the permitting issuing agency and the costs to dischargers can be reduced by replacing more complicated permit application requirements with simplified requirements.

One State commented that EPA should not mandate by regulation the information required in an NOI, which it believed should be left to the State or EPA Region issuing a general permit. In response, the Agency believes that today's regulatory framework provides sufficient flexibility for developing NOI requirements, and that the minimum information requirements of today's rule represent essential information necessary for meeting the program objectives outlined above. Under today's rule, the minimum requirements for NOIs include the legal name of the owner or operator and the facility name and address. EPA believes that this information is essential to identify the location of the facility for compliance purposes and to provide mailing addresses necessary to conduct any correspondence. The minimum NOI requirements also include a description of the type of facility or dischargers. This description is necessary to provide information to screen whether the discharge is eligible for coverage under the general permit and to allow the permit writer to begin to identify priority discharges. Finally, the minimum NOI requirements include the receiving stream(s). This information is necessary to adequately identify the discharges to impaired receiving waters where water quality-based permits are necessary.

Some commenters indicated that they believed that all discharges should be required to submit an NOI. Various reasons were provided to support this approach, including that the NPDES authority needed to know of all facilities that discharged storm water to a given water body, and that dischargers should not be required to comply with a permit unless they submit a notification. In response, the Agency believes that most

general permits will require the submittal of NOI. However, there may be some situations where it may be more appropriate to have the Director notify dischargers that they are covered by a general permit or that NOI requirements are otherwise not appropriate.

For example, issuing a general permit without NOI requirements may be an appropriate way for EPA and authorized NPDES States to minimize administrative burdens and compliance costs in permits for small discharges which have been determined to have minimal or no impacts on receiving waters. Today's regulation provide some flexibility to address these situations.

In the August 16, 1991 notice, EPA requested comment on whether it is appropriate to require NOIs for the large number of contaminated storm water discharges associated with industrial activity from oil and gas exploration and production operations. Most commenters on this issue indicated that they thought NOIs should be required in general permits for storm water discharges from oil and gas operations. One State commented that it believed that it would be inappropriate to exclude a class of discharges from the requirements to submit an NOI unless there is an alternative method that can and will be used to track these discharges. A different commenter indicated that oil and gas operations were adequately monitored through the Spill Prevention Control and Countermeasure (SPCC) program and that NOIs for NPDES general permits would not be necessary. A number of the commenters expressed confusion over the relationship between this provision and section 402(1)(2) of the CWA¹⁰, and suggested that requiring

¹⁰ Section 402(1)(2) of the CWA provides that NPDES permits shall not be required for storm water runoff from mining operations or oil and gas exploration, production, processing or treatment operations or transmission facilities, composed entirely of flows which are from conveyances or systems of conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with or that has not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct or waste products located on the site of such operation. EPA published permit application regulations consistent with section 402(1)(2) on November 16, 1990 (55 FR 40003). These regulations require permit applications for discharges composed entirely of storm water associated with industrial activity from oil or gas exploration, production, processing, or treatment operations, or transmission facilities only when a discharge of storm waters results in a discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 117.21, 40 CFR 302.6, or 40 CFR 110.6 at anytime since November 16, 1987, or the discharge contributes to a violation of a water

NOIs in NPDES permits for storm water discharges from oil and gas operations would minimize this confusion.

After evaluation of the comments, EPA believes, that except for the situation of inactive oil and gas operations on Federal lands discussed below, it is not appropriate to exclude contaminated storm water discharges associated with industrial activity from oil and gas exploration and production operations from the minimum NOI requirements, and therefore today's rule does not treat storm water discharges associated with industrial activity from oil and gas operations differently than other storm water discharges associated with industrial activity in this regard. As a result, today's rule does not contain a specific reference to storm water discharges from oil and gas operations. The Agency believes that NOI requirements in general permits for storm water discharges from oil and gas operation will provide for a clear tracking mechanism that is currently unavailable under the SPCC program¹¹. In addition, as was pointed out by commenters, the NOI process can be used to identify facilities with contaminated runoff, and therefore minimize confusion with respect to the provisions of section 402(1)(2) of the CWA.

One commenter requested clarification on the procedures that would be followed to ensure that permits requiring Director notification instead of facility submission of an NOI are in compliance with the procedural requirements of the CWA and the NPDES regulations. The Agency does not believe that today's rule conflicts with the NPDES regulations or the CWA. The Agency believes that the existing NPDES regulations provide for adequate public notice and public comment opportunities when general permits are issued. (See 40 CFR 124.10,

quality standard. (see 40 CFR 122.28(c)(1)(iii)). Permit applications are not required for a discharge composed entirely of storm water from a mining operation unless the discharge comes into contact with any overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations.

¹¹ EPA requested comment on using information collected under the SPCC program to track storm water discharges. However, this approach has a number of limitations, including that the SPCC program currently does not require facilities subject to SPCC requirements to submit notifications. In addition, many facilities subject to the SPCC program are not subject to the NPDES storm water program either because they do not have a storm water discharge to waters of the United States or because they are not activities that are addressed by the regulatory definition of storm water discharge associated with industrial activity at 40 CFR 122.28(b)(14) (e.g., certain pipelines).

124.11, and 124.57.) The Agency wants to point out that the NPDES regulations require certain opportunities for the public to comment during the permit issuance process, and provide for permit appeal after the permit is issued. In addition, 40 CFR 122.28(b)(2)(iii) provides that for EPA issued permits, any owner or operator authorized by a general permit may request to be excluded from the coverage of the general permit by applying for an individual permit.

One commenter requested clarification on the type of notification that must be provided by the Director to a discharger where the discharger is not required to submit an NOI. In response, the Agency believes that in most cases, the Director will notify dischargers of coverage in writing.

One commenter requested clarification on whether a discharger that is not required to submit an NOI, but rather is notified by a Director, will be subject to permit fees. The Agency wants to clarify that this rulemaking does not address permit fees.

One commenter, while supporting the requirement that an NOI be submitted, indicated that EPA could reduce its paperwork load by issuing general permits for storm water discharges from construction sites that required dischargers to notify municipalities instead of the NPDES permit authority. EPA disagrees with this approach. Submitting NOIs to municipalities but not requiring that an NOI be submitted to the Director may not assure that EPA or authorized NPDES States receive adequate information to effectively implement the NPDES program for these discharges.

In the August 16, 1991 notice, EPA proposed that general permits for storm water discharges associated with industrial activity from inactive mining, inactive oil and gas operations occurring on Federal lands where an operator cannot be identified may contain alternative notice of intent requirements. A federal land management agency commented that inactive landfills on Federal lands are in some ways analogous to inactive mines and inactive oil and gas operations and should be treated similarly. EPA agrees with this comment and accordingly today's rule allows alternative notice of intent requirements in general permits for storm water discharges associated with industrial activity from inactive landfills on Federal lands.

One State urged EPA not to refer to NOIs as permit applications. They were concerned that calling NOIs permit applications would trigger certain public notice requirements under State law.

They further argued that the purpose of NOIs are significantly different than permit applications, and that the cited State law provision should not apply. In response, EPA recognizes the differences between the purpose of a notice of intent and an individual permit application. Individual permit applications contain a significant amount of site-specific information that is typically used for the development of individual permit conditions. NOIs typically contain only general information and are used for screening and compliance purposes rather than for the development of permit conditions. However, the distinction between individual applications and NOIs as they relate to public notice requirements in various State laws is a question of interpretation of those State laws which EPA does not attempt to answer in this notice. EPA notes however, that it considers submission of an NOI to constitute a permit application for purposes of federal regulatory provisions which provide that a timely reapplication of a federal permit or license continues the effectiveness of the existing permit pending action by the Director. (See 40 CFR 122.6).

In the preamble to the August 16, 1991 notice, EPA discussed public accessibility to lists of NOIs, but did not publish proposed regulatory language addressing this issue. EPA does not intend to address this issue in this rulemaking, but will be addressing the issue in future rulemakings.

D. Deadline for Part 2 of Group Applications.

1. November 5, 1991 Proposal

On November 5, 1991, (56 FR 58555), EPA requested comments on extending the deadline for submitting part 2 of the group application from May 18, 1992 to October 1, 1992. In the November 5, 1991 notice, the Agency indicated that this extension would provide an appropriate opportunity to conduct sampling to support the Part 2 application and would allow for permit issuing agencies to issue general permits.

2. Today's Rule

EPA received over 60 comments on the November 5, 1991 proposal. After careful consideration of these comments, the Agency is extending the deadline for submitting part 2 of the group applications for storm water discharges associated with industrial activity from May 18, 1992 to October 1, 1992 as proposed.

EPA is granting this extension to provide an appropriate opportunity to conduct sampling to support the part 2

application. This regulatory modification will provide a more equitable framework for submitting permit applications for storm water discharges associated with industrial activity. It will also allow for permit issuing agencies to issue general permits prior to the completion of the group application process.

3. Response to Comments

All of the comments received on the November 5, 1991 proposal to extend the regulatory deadline for submitting part 2 of the group application supported an extension. A number of reasons were provided to justify the extension, including the difficulty associated with sampling storm water discharges from facilities located in arid and northern regions during winter months, the need for time to allow for the preparation of guidance documents, training personnel in sampling techniques, and conducting analytical work. A number of commenters supported October 1, 1992 as the deadline for part 2 of the group application. In general, these commenters expressed their belief that the deadlines for submitting part 2 of the group application and individual permit applications for storm water discharges associated with industrial activity should be the same. A number of reasons were given for supporting this approach, including, that this would be the most equitable approach, the regulated community would have a clearer choice of application options, and one deadline would limit confusion. EPA agrees with these concerns, and as is discussed above, is extending the deadline for submitting part 2 of the group application from May 18, 1992 to October 1, 1992.

Some commenters favored extending the deadline for submitting part 2 of the group application beyond October 1, 1992. Some of these commenters suggested that part 2 of the group application should not be required until general permits for storm water discharges associated with industrial activity were issued. These commenters indicated that this approach would ensure that dischargers would have three options for applying for a permit, (e.g. participating in a group application, submitting an individual application, or submitting an NOI to be covered under a general permit). This would allow dischargers to select the most cost-effective approach allowable under the NPDES regulatory framework. Other commenters suggested that participants in a group should be given one complete year from the date after the group

receives notice of approval of the part 1 application.

EPA notes that the extension to October 1, 1992 provides authorized NPDES States with additional time to issue general permits for storm water discharges associated with industrial activity. On August 16, 1991, (56 FR 40948), EPA published a proposal requesting public comment on draft general permits for storm water discharges associated with industrial activity in States and territories without authorized NPDES programs.¹² The Agency intends to make every effort to issue these general permits in the spring of 1992.

However, EPA has decided against basing the deadline for submitting part 2 of the group applications on the date that general permits are issued by individual States because of the potential confusion and uncertainty that would arise. Although the Agency proposed draft general permits for storm water discharges in States without authorized State NPDES programs in one notice, it may not finalize all of these permits on the same date. The Agency expects that various region-specific, State-specific, or industrial category-specific issues may take different amounts of time to address. It should also be noted that the August 16, 1991 proposal does not address general permits in authorized NPDES States. Each authorized NPDES State that will issue general permits for storm water discharges associated with industrial activity will have to go through the procedures for issuing general permits of that State. Different permit issuance procedures, along with other factors, will result in these permits being issued at different times. All of these factors indicate that a tremendous amount of uncertainty and confusion would result if EPA attempted to tie regulatory deadlines for submitting permit applications to the dates when general permits are issued for particular States. This is particularly important to the group application process where facilities from many different States may be in the same group.

In addition, the Agency anticipates that there will be situations where the permitting authority determines that

general permits are inappropriate for a given class of storm water discharges. Additional confusion would arise in these situations if application deadlines were tied to the dates of general permit issuance. The Agency is also concerned that unacceptable delays may result under this approach in States where the issuance of a general permit is delayed.

EPA also disagrees with the suggestion that the deadlines for submitting part 2 of the application should be based on the date on which a part 1 application is accepted. EPA believes that establishing a fixed deadline of October 1, 1992 for part 2 of the group application is warranted for the same reasons that the Agency articulated above and in the proposal. This approach provides an equitable deadline for these facilities, reduces confusion and uncertainty in the regulated community, and provides sufficient time to complete the sampling necessary to obtain quantitative data.

E. Clarification for Part 2 of Group Applications

The November 16, 1990 regulations established procedures for group applications for storm water discharges associated with industrial activity. The group application process allows for facilities with similar storm water discharges to file a single two part permit application. Part 1 of a group application includes a list of the facilities applying, a narrative description summarizing the industrial activities of participants of the group, a list of significant materials exposed to precipitation that are stored by participants and material management practices employed to diminish contact of these materials by precipitation (see 40 CFR 122.26(c)(2)(i)). In addition, the part 1 application must identify the group participants that will submit quantitative data (sampling data) in part 2 of the group application. These participants must be representative of the group.

In part 2 of the group application, the subset of facilities identified in the Part 1 application must submit quantitative data. The provisions of 40 CFR 122.26(c)(2)(ii) establish a minimum criteria for identifying facilities from which sampling data must be submitted. EPA had proposed that, in general, groups submit data from at least 10 percent of the facilities in the group, with a minimum of 10 facilities submitting data (December 7, 1988 (53 FR 49435)). In the final rule, EPA allowed groups of 4 to 10 members to apply if 50 percent of the facilities

submitted data (November 16, 1990 (55 FR 48067)).

During the group application process, the regulated community exhibited some confusion regarding the minimum number of facilities that must submit sampling data for groups with 11 to 99 members. For groups with 11 to 99 members, some groups have interpreted the language in the November 16, 1990 regulations to require 10 percent of the facilities to submit sampling data, while other groups have interpreted the language to require a minimum of 10 facilities to submit sampling data.

In today's action, EPA wants to clarify that for groups with 20 or fewer members, at least 50 percent of the dischargers participating in the group must submit quantitative data. For example, at least nine facilities must submit quantitative data if a group is composed of 17 members. For groups with 21 to 99 members, at least 10 dischargers participating in the group must submit quantitative data. For example, at least ten facilities must submit quantitative data if a group is composed of 25 members. For groups with 100 to 1,000 members, at least 10 percent of the dischargers participating in the group must submit quantitative data. For groups with more than 1,000 members, no more than 100 dischargers participating in the group must submit quantitative data.

For groups with more than 10 members, either a minimum of two dischargers from each precipitation zone indicated in appendix E of 40 CFR part 122 in which ten or more members of the group are located, or one discharger from each precipitation zone indicated in appendix E of 40 CFR part 122 in which nine or fewer members of the group are located, must be identified to submit quantitative data. For groups of 4 to 10 members, at least one facility in each precipitation zone in which members of the group are located must submit data. EPA has made a correction to the group application requirements to reflect the above, which represents EPA's original intent in the November 16, 1990 rule.

F. Transportation Act Deadlines

Section 1068 of the Transportation Act addresses permit application deadlines for storm water discharges associated with industrial activity that are owned or operated by municipalities. Today's rule codifies three changes to existing regulatory deadlines to reflect the new provisions of section 1068. The first two modifications address individual application deadlines, and the third addresses group application deadlines.

¹² The notice addresses draft general permits in 12 States (MA, ME, NH, FL, LA, TX, OK, NM, SD, AZ, AK, ID), and six Territories (District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and the Trust Territory of the Pacific Islands) without authorized NPDES State programs; on Indian lands in AL, CA, GA, KY, MI, MN, MS, MT, NC, ND, NY, NV, SC, TN, UT, WI, and WY; located within federal facilities and Indian lands in CO and WA; and located within federal facilities in Delaware.

The deadlines for submitting individual permit applications for storm water discharges associated with industrial activity that are owned or operated by municipalities are consistent with the October 1, 1992 regulatory deadline that EPA established on November 5, 1991 (56 FR 56548) with two exceptions:

(1) Municipal facilities that have been identified in a part 1 group application that has been submitted in a timely manner where either the group application is denied or the particular facility is rejected from the group, are not required to submit an individual application until the 180th day following the date on which the denial or rejection is made; and

(2) Facilities owned or operated by a municipality with a population of less than 100,000 other than an airport, powerplant, or uncontrolled sanitary landfill are not required to submit a permit application at this time unless a permit is required under either section 402(p)(2) (A) or (E) of the CWA.

With regard to facilities that are either part of a group that has been denied or which are individually rejected from a group, today's rule codifies alternative deadlines for storm water discharges associated with industrial activity from facilities that are owned or operated by a municipality and that are rejected as members of a part 1 group application. Such dischargers shall submit an individual application no later than 180 days after the date of receipt of the notice of rejection or October 1, 1992, whichever is later.

With respect to facilities owned or operated by municipalities with a population of 100,000 or less, EPA believes that Congress intended this language to place all of their storm water discharges (except for those from airports, powerplants and uncontrolled sanitary landfills) into Phase II of the storm water program.

Today's rule also codifies the Transportation Act's alternative deadlines for group applications for storm water discharges associated with industrial activities that are owned or operated by municipalities with a population of less than 250,000. Reflecting the new provisions of Section 1068 of the Transportation Act, the group application deadlines for these facilities are now May 18, 1992 for part 1 applications and May 17, 1993 for part 2 applications.

EPA also wants to clarify that the Transportation Act did not affect any of the regulatory application deadlines for storm water discharges associated with industrial activity from facilities that are either not owned or operated by a

municipality or that are owned or operated by a municipality with a population of 250,000 or more. The legislative history for the Transportation Act clarified that "nothing in the conference report affects most of the dates for submitting stormwater permit applications established in EPA's recent rulemaking published in the Federal Register on November 5, 1991. . . . The conference report, while silent on the deadlines for these privately owned industries, is not intended to override the dates established in EPA's rulemaking action." (Vol. 137 Cong. Rec. H11509 (daily ed. November 26, 1991). Rep. Hammerschmidt). Thus, the permit application deadlines for storm water discharges associated with industrial activity from privately owned and operated facilities, including those that discharge through a municipal separate storm sewer to waters of the United States, are not changed by today's rule with the exception of the part 2 application deadlines discussed elsewhere in today's notice. Also, where a facility is privately owned and operated, but has a service contract with a municipality, the facility is not considered to be "municipally operated". For example, a privately owned and operated landfill that receives municipal waste pursuant to a contract with a municipality or some other form of reimbursement from a municipality can not avail itself of the application deadline extensions in the Transportation Act, which apply only to facilities owned or operated by municipal governments.

As outlined above, section 1068 of the Transportation Act contains special provisions for municipalities with a population of less than 100,000. Section 1068(c) of the Transportation Act defines two classes of industrial facilities that are owned or operated by municipalities with a population of less than 100,000. The first group of facilities is comprised of airports, powerplants, and uncontrolled sanitary landfills that are owned or operated by a municipality with a population of less than 100,000. It is clear that Congress did not intend in section 1068(c) to change the existing individual application deadlines for these discharges. Group application requirements for storm water discharges associated with industrial activity from these facilities are addressed by section 1068(b) of the Transportation Bill. As discussed above, the group application deadlines for these facilities are May 18, 1992 for Part 1 applications and May 17, 1993 for part 2 applications.

The second group is comprised of facilities with storm water discharges associated with industrial activity other

than airports, powerplants or uncontrolled sanitary landfills that are owned or operated by municipalities with a population of less than 100,000. Section 1068(c) provides that EPA shall not require this second group of industrial facilities to apply for or obtain a permit before October 1, 1992, unless a permit is required under either section 402(p)(2) (A) or (E) of the CWA.

With respect to this second group of facilities, today's rule reserves the regulatory deadlines for storm water applications. The Agency intends to address these facilities in a manner that is similar to other storm water discharges addressed by section 402(p)(1) or the CWA.¹³ Currently, the Agency intends to evaluate storm water discharges associated with industrial activity that are owned or operated by a municipality with a population of less than 100,000 (except for those from powerplants, uncontrolled sanitary landfills and airports) along with other storm water discharges addressed by section 402(p)(1) in two studies required under section 402(p)(5) of the CWA. These studies will be used to support the development of regulations under section 402(p)(6).¹⁴ It is clear from the legislative history of the Transportation Act that Congress intended to address these discharges in this manner, i.e., as discharges subject to the permit moratorium of section 402(p)(1) of the CWA. "EPA defined industrial activity in such a way as to require many cities with a population under 100,000 to make application for stormwater permits, notwithstanding the moratorium on permit requirements that the Congress thought it was putting in place . . . This legislation will clarify that small cities need not apply for permits associated with some of the industrial facilities they own or operate until October 1, 1992, [the] date for the general moratorium on their permit requirements." (Vol. 137 Cong. Rec. S18596 (daily ed. November 27, 1991). Sen. Chafee). "[M]unicipalities with populations of less than 100,000 would

¹³ Section 402(p)(1) of the CWA creates a moratorium on issuing NPDES permits until October 1, 1992 for storm water discharges that are not identified in section 402(p)(2) of the CWA.

¹⁴ Section 402(p)(6) of the CWA requires EPA, in consultation with State and local officials, is required to issue regulations by no later than October 1, 1992, which designate additional storm water discharges to be regulated to protect water quality and establish a comprehensive program to regulate such designated sources. This program must establish, at a minimum, (A) priorities, (B) requirements for State Storm Water Management Programs, and (C) expeditious deadlines. The program may include performance standards, guidelines, guidance, and management practices and treatment requirements as appropriate.

not be required to apply for permits for stormwater discharges associated with industrial activities except for power plants, uncontrolled sanitary landfills, and airports." (Vol. 137 Cong. Rec. H11509 (daily ed. November 28, 1991), Rep. Hammerschmidt).

1. Determining the Population of Municipalities

The Transportation Act establishes phased requirements for NPDES permits for storm water discharges associated with industrial activity from facilities that are owned or operated by municipalities with specified populations. However, the Transportation Act uses a different classification scheme than is used in section 402(p) of the CWA to define classes of municipal separate storm sewer systems. Under section 402(p) of the CWA, municipal separate storm sewer systems are classified on the basis of population served by the system. Under the Transportation Act, the population used for classifying industrial operations owned or operated by municipalities is the population of the municipality. This distinction is important because a number of municipal entities with a population of 100,000 or more are not addressed by the regulatory definitions of large and medium municipal separate storm sewer systems.

40 CFR 122.26(b)(4) and (7) specifically identify 173 cities and 47 counties as having large or medium municipal separate storm sewer systems (e.g., systems serving a population of 100,000 or more).¹⁵ While these definitions identify all incorporated cities with a population of 100,000 or more, they only specifically identify 47 of the 447 counties with a population of 100,000 or more based on the 1990 Census.¹⁶ In addition, other types of municipal entities which may own or operate storm water discharges associated with industrial activity are not specifically addressed by the regulatory definition of large and medium municipal separate storm sewer systems. Examples include: sanitary sewer districts, flood control districts, and unincorporated towns and townships.

In providing phased requirements for different storm water discharges associated with industrial activity that are owned or operated by municipalities, EPA believes that a

primary concern of Congress was the economic burdens placed on municipalities with a smaller population base over which to spread costs. In general, when determining the population of a municipal entity, EPA will look at the general population or service population of the municipal entity.

For the purpose of today's rule, the 1990 Census will be used to determine the population of counties. Service populations will be used to determine the population of sewage treatment districts which operate publicly owned treatment works (POTWs). Where one sewer district operates a number of plants, the entire service population of the district will be used to determine the applicable population classification of all of the treatment works operated by the district.¹⁷ Populations within service districts will be used to determine the populations of flood control districts and other municipal entities with service populations. The State population will be used to determine the population of State DOTs.¹⁸ Where an industrial facility is owned or operated by more than one municipality, then EPA intends to use the combined populations of the appropriate municipalities in determining population thresholds.

EPA believes that the distinction between the population of a municipality and the population served by a municipal separate storm sewer system is appropriate and was intended by Congress. In the November 16, 1990 rulemaking, EPA noted inter-jurisdiction complexities associated with municipal governments developing controls for storm water into such large and medium systems played a role in defining the regulatory terms large and medium municipal separate storm sewer systems. However, such concerns do not appear to be as evident with industrial facilities that are owned or operated by municipal entities.

¹⁷ For example, if a district with a cumulative service population of 350,000 operates two sewage treatment plants, one of which serves 300,000, and the other which serves 50,000, both plants will be considered to be a facility that is owned or operated by a municipality with a population of 350,000 or more.

¹⁸ Under this approach, EPA would base the population of facilities operated by a State DOT on the entire State population rather than the population of the local government entity with land use authority (e.g., city, town, township, county) in which the facility is physically located. EPA believes that this approach is appropriate because the State DOT facility will typically be operated fairly independently of the local government entity with land use authority and the major revenue sources of the State DOT are State-wide (such as gasoline taxes).

2. Uncontrolled Sanitary Landfills

Section 1068(c) of the Transportation Act provides that facilities owned or operated by a municipality with a population of less than 100,000 other than an airport, powerplant, or uncontrolled sanitary landfill are not required to apply for permit applications at this time unless a permit is required under either section 402(p)(2) (A) or (E) of the CWA.

Section 1068(d) of the Transportation Act defines the term "uncontrolled sanitary landfill" to mean a landfill or open dump, whether in operation or closed, that does not meet the requirements for runoff and runoff controls established pursuant to subtitle D of the Solid Waste Disposal Act. Today's action codifies this definition at 40 CFR 122.26(b)(15).

On October 9, 1991, (56 FR 50978), EPA published criteria for solid waste disposal facilities, including municipal solid waste landfills (MSWLFs), pursuant to subtitle D of the Solid Waste Disposal Act. Several provisions of these regulations specifically address runoff and runoff from the active portions of regulated units. Owners or operators of all MSWLF units are required under 40 CFR 258.25 to design, construct and maintain a runoff control system to prevent flow onto the active portion of the MSWLF unit during the peak discharge from a 25-year storm. In addition, all MSWLF units are required to design, construct, and maintain a runoff control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm. Runoff from the active portion of the unit must be handled in accordance with the surface water requirements of 40 CFR 258.27(a), which provides that all MSWLF units must be operated in compliance with NPDES requirements.¹⁹ Any discharges of a nonpoint source of pollution from an MSWLF unit into waters of the United States must also be in conformance with any established water quality management plan developed under the CWA. The

¹⁹ The October 9, 1991 rule clarified that the subtitle D requirements call for the collection and control of runoff from the active portion of MSWLF units, but do not require that the collected runoff be sampled or treated. This was because when the notice was issued, EPA was in the process of implementing NPDES requirements for storm water discharges associated with industrial activity from landfills. In the October 9, 1991 notice EPA explained that the NPDES permit under the CWA would be the appropriate mechanism for ensuring that point source discharges of runoff from MSWLFs are protective of human health and the environment (see October 9, 1991, (56 FR 50954)).

¹⁵ See appendices F, G, H, and I to 40 CFR part 122.

¹⁶ The regulatory definitions of large and medium municipal separate storm sewer systems only specifically identify counties with a population of 100,000 in unincorporated, urbanized areas of the county.

effective date for these requirements are October 9, 1993.

Operators of landfills that are owned or operated by a municipality with a population of less than 100,000 with a storm water discharge associated with industrial activity²⁰ that are 'uncontrolled' must submit an NPDES permit application for their discharge, or obtain coverage under an appropriate general permit.

EPA remains concerned about the risks to surface water quality posed by landfills.²¹ The Agency wants to clarify that storm water discharges from landfills that are owned or operated by a municipality with a population of less than 100,000 can still be required to obtain an NPDES permit even where they are in compliance with subtitle D requirements where they are designated under section 402(p)(2)(E) of the CWA as needing an NPDES permit because they are significant contributors of pollutants to waters of the United States or they contribute to a violation of a water quality standard.

III. Economic Impact

EPA has prepared an Information Collection Request (ICR) for the purpose of estimating the information collection burden imposed on Federal, State and local governments and industry by today's revisions to requirements to submit annual monitoring reports, minimum notice of intent (NOI) requirements for NPDES general

permits, and for States to submit State Storm Water Permitting Plans.

EPA estimates that the total annual cost of complying with the revised monitoring reporting requirements for storm water discharges is \$12,756,146. The Agency estimates that today's rule results in an annual reduction in costs to the regulated community of \$8,973,526 over the prior regulatory requirement. EPA estimates that the annual costs of complying with NOI submissions required by NPDES permits to be \$282,348. However, EPA believes that today's rule will not increase the existing burdens of complying with NOI requirements.

EPA estimates that the annual costs to State governments and EPA of reviewing monitoring reports for storm water discharges is \$136,156. The Agency estimates that the annual costs to States and EPA of reviewing NOIs is \$210,919. However, EPA believes that today's rule will not increase the existing burdens of reviewing NOIs. EPA estimates the total annual costs of preparing and reviewing State Storm Water Permitting Plans to \$351,846.

IV. Executive Order 12291

Executive Order 12291 requires EPA and other agencies to perform regulatory analyses of major regulations. Major regulations are those which impose a cost on the economy of \$100 million or more annually or have certain other economic impacts. Today's regulatory amendments generally make the NPDES permit applications more flexible and less burdensome for the regulated community. These regulations do not satisfy any of the criteria specified in section 1(b) of the Executive Order and, as such, do not constitute a major rule. This regulation was submitted to the Office of Management and Budget (OMB) for review.

V. Paperwork Reduction Act

The information requirements in this rule have been approved by the Office of Management and Budget (OMB) under provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* and have been assigned OMB Control number 2040-0004.

Public reporting burden for this collection of information is estimated to average 17.46 hours per response, an increase of 1.50 hours. This includes time for reviewing instructions, searching existing data sources, gathering the data needed, and completing and reviewing the collection of information. The 17.46 figure is an average for all dischargers under the NPDES program, including POTWs,

industrial process, and stormwater dischargers. For storm water dischargers, the average burden per response will decrease by 3.8 hours per respondent.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223Y, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

VI. Regulatory Flexibility Act

Under the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, EPA is required to prepare a Regulatory Flexibility Analysis to assess the impact of rules on small entities. No Regulatory Flexibility Analysis is required, however, where the head of the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.

Today's amendments to the regulations would generally make the NPDES regulations more flexible and less burdensome for permittees. Accordingly, I hereby certify, pursuant to 5 U.S.C. 605(b), that these amendments will not have a significant impact on a substantial number of small entities.

VII. APA Requirements

The amendments to permit application deadlines for storm water discharges associated with industrial activity from facilities owned or operated by municipalities are being adopted without notice and comment. As they merely codify the provisions of section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991, they constitute interpretive rules for which notice and comment is not required. EPA requested comment on the issue of the minimum number of facilities that must submit sampling data in a group application in a December 7, 1988 notice (53 FR 49416). Additional notice and comment is not required for the clarification to the group application regulations made in today's rule because the Agency has already taken comments on this issue and today's action only clarifies the approach that was intended by the November 16, 1990 rule.

List of Subjects in 40 CFR Part 122

Administrative practice and procedure, Environmental protection, Reporting and record keeping

²⁰ The existing landfill criteria in part 257 address all landfills except those covered by the revised criteria in part 258; which address municipal landfills which receive household hazardous wastes or hazardous wastes from small quantity generators. By contrast, the NPDES regulatory definition of "storm water discharge associated with industrial activity" addresses landfills that receive or have received any industrial wastes (wastes received from any of the other classes of facilities addressed by the regulatory definition of storm water discharges associated with industrial activity) (see 40 CFR 122.26(b)(14)).

²¹ Surface water impacts associated with solid waste landfills are well characterized. In the August 30, 1988 (53 FR 33317) NPRM addressing solid waste disposal facility criteria under RCRA subtitle D, EPA noted that state inspection data, case study evidence, risk characterization studies, and the current limited use of design controls indicate that some solid waste landfills have degraded surface water quality and that this degradation could continue. Older landfills are of most concern because they may have received large volumes of hazardous waste and, in general, their use of design controls was very limited. States reported that of the 1,100 municipal solid waste landfills which monitored discharges to surface water, 690 were cited for surface water impacts. EPA believes that newer and future solid waste landfills may present lower risks because subtitle C regulations keep most hazardous waste out of solid waste landfills. In addition, design controls for solid waste landfills have improved, and are expected to continue to improve with the implementation of subtitle D requirements (see October 9, 1991 (56 FR 50981)).

requirements. Water pollution control. General permits. Storm water.

Authority: Clean Water Act, 33 U.S.C. 1251 et seq.

Dated: March 23, 1992.

William K. Reilly,
Administrator.

For the reasons stated in the preamble, title 40 of the Code of Regulations is amended as follows:

PART 122—EPA ADMINISTERED PERMIT PROGRAMS; THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

1. The authority citation for part 122 continues to read as follows:

Authority: Clean Water Act, 33 U.S.C. 1251 et seq.

Subpart B—Permit Application and Special NPDES Program Requirements

§ 122.28 [Amended]

2. Section 122.28 is amended by adding paragraph (b)(15), and revising paragraphs (c)(2)(i)(D), (e)(1), (e)(2)(i), (e)(2)(iii) and (e)(2)(iv) to read as follows:

§ 122.28 Storm water discharges (applicable to State NPDES programs, see § 123.25).

(b) * * *

(15) *Uncontrolled sanitary landfill* means a landfill or open dump, whether in operation or closed, that does not meet the requirements for runoff or runoff controls established pursuant to subtitle D of the Solid Waste Disposal Act.

(c) * * *

(2) * * *

(i) * * *

(D) For groups of more than 1,000 members, identify at least 100 dischargers participating in the group application from which quantitative data will be submitted. For groups of 100 or more members, identify a minimum of ten percent of the dischargers participating in the group application from which quantitative data will be submitted. For groups of between 21 and 99 members identify a minimum of ten dischargers participating in the group application from which quantitative data will be submitted. For groups of 4 to 20 members, identify a minimum of 50 percent of the dischargers participating in the group application from which quantitative data will be submitted. For groups with more than 10 members, either a minimum of two dischargers from each precipitation zone indicated in appendix E of this part in which ten or more members of the group are

located, or one discharger from each precipitation zone indicated in appendix E of this part in which nine or fewer members of the group are located, must be identified to submit quantitative data. For groups of 4 to 10 members, at least one facility in each precipitation zone indicated in appendix E of this part in which members of the group are located must be identified to submit quantitative data. A description of why the facilities selected to perform sampling and analysis are representative of the group as a whole in terms of the information provided in paragraphs (c)(1)(i)(B) and (c)(1)(i)(C) of this section, shall accompany this section. Different factors impacting the nature of the storm water discharges, such as the processes used and material management, shall be represented, to the extent feasible, in a manner roughly equivalent to their proportion in the group.

(e) * * *

(1) *Individual applications.* (i) Except as provided in paragraph (e)(1)(ii) of this section, for any storm water discharge associated with industrial activity identified in paragraphs (b)(14) (i) through (xi) of this section, that is not part of a group application as described in paragraph (c)(2) of this section or which is not authorized by a storm water general permit, a permit application made pursuant to paragraph (C) of this section shall be submitted to the Director by October 1, 1992.

(ii) For any storm water discharge associated with industrial activity from a facility that is owned or operated by a municipality with a population of less than 100,000 other than an airport, powerplant, or uncontrolled sanitary landfill, permit applications requirements are reserved.

(2) * * *

(i) *Part 1.* (A) Except as provided in paragraph (e)(2)(i)(B) of this section, part 1 of the application shall be submitted to the Director, Office of Wastewater Enforcement and Compliance by September 30, 1991.

(B) Any municipality with a population of less than 250,000 shall not be required to submit a part 1 application before May 18, 1992.

(C) For any storm water discharge associated with industrial activity from a facility that is owned or operated by a municipality with a population of less than 100,000 other than an airport, powerplant, or uncontrolled sanitary landfill, permit applications requirements are reserved.

(iii) *Part 2.* (A) Except as provided in paragraph (e)(2)(iii)(B) of this section, part 2 of the application shall be submitted to the Director, Office of Wastewater Enforcement and Compliance by October 1, 1992.

(B) Any municipality with a population of less than 250,000 shall not be required to submit a part 1 application before May 17, 1993.

(C) For any storm water discharge associated with industrial activity from a facility that is owned or operated by a municipality with a population of less than 100,000 other than an airport, powerplant, or uncontrolled sanitary landfill, permit applications requirements are reserved.

(iv) *Rejected facilities.* (A) Except as provided in paragraph (e)(2)(iv)(B) of this section, facilities that are rejected as members of the group shall submit an individual application (or obtain coverage under an applicable general permit) no later than 12 months after the date of receipt of the notice of rejection or October 1, 1992, whichever comes first.

(B) Facilities that are owned or operated by a municipality and that are rejected as members of part 1 group application shall submit an individual application no later than 180 days after the date of receipt of the notice of rejection or October 1, 1992, whichever is later.

2a. Section 122.28 is amended by redesignating current paragraph (b)(2) as (b)(3) and by adding a new paragraph (b)(2) to read as follows:

§ 122.28 General permits (applicable to state NPDES programs, see § 123.25).

(b) * * *

(2) *Authorization to discharge, or authorization to engage in sludge use and disposal practices.* (i) Except as provided in paragraphs (b)(2)(v) and (b)(2)(vi) of this section, dischargers (or treatment works treating domestic sewage) seeking coverage under a general permit shall submit to the Director a written notice of intent to be covered by the general permit. A discharger (or treatment works treating domestic sewage) who fails to submit a notice of intent in accordance with the terms of the permit is not authorized to discharge, (or in the case of sludge disposal permit, to engage in a sludge use or disposal practice), under the terms of the general permit unless the general permit, in accordance with paragraph (b)(2)(v) of this section, contains a provision that a notice of intent is not required or the Director

notifies a discharger (or treatment works treating domestic sewage) that it is covered by a general permit in accordance with paragraph (b)(2)(vi) of this section. A complete and timely, notice of intent (NOI), to be covered in accordance with general permit requirements, fulfills the requirements for permit applications for purposes of §§ 122.6, 122.21 and 122.26.

(ii) The contents of the notice of intent shall be specified in the general permit and shall require the submission of information necessary for adequate program implementation, including at a minimum, the legal name and address of the owner or operator, the facility name and address, type of facility or discharges, and the receiving stream(s). General permits for storm water discharges associated with industrial activity from inactive mining, inactive oil and gas operations, or inactive landfills occurring on Federal lands where an operator cannot be identified may contain alternative notice of intent requirements. All notices of intent shall be signed in accordance with § 122.22.

(iii) General permits shall specify the deadlines for submitting notices of intent to be covered and the date(s) when a discharger is authorized to discharge under the permit;

(iv) General permits shall specify whether a discharger (or treatment works treating domestic sewage) that has submitted a complete and timely notice of intent to be covered in accordance with the general permit and that is eligible for coverage under the permit, is authorized to discharge, (or in the case of a sludge disposal permit, to engage in a sludge use or disposal practice), in accordance with the permit either upon receipt of the notice of intent by the Director, after a waiting period specified in the general permit, or upon receipt of notification of inclusion by the Director. Coverage may be terminated or revoked in accordance with paragraph (b)(3) of this section.

(v) Discharges other than discharges from publicly owned treatment works, combined sewer overflows, primary industrial facilities, and storm water discharges associated with industrial activity, may, at the discretion of the Director, be authorized to discharge under a general permit without submitting a notice of intent where the Director finds that a notice of intent

requirement would be inappropriate. In making such a finding, the Director shall consider: the type of discharge; the expected nature of the discharge; the potential for toxic and conventional pollutants in the discharges; the expected volume of the discharges; other means of identifying discharges covered by the permit; and the estimated number of discharges to be covered by the permit. The Director shall provide in the public notice of the general permit the reasons for not requiring a notice of intent.

(vi) The Director may notify a discharger (or treatment works treating domestic sewage) that it is covered by a general permit, even if the discharger (or treatment works treating domestic sewage) has not submitted a notice of intent to be covered. A discharger (or treatment works treating domestic sewage) so notified may request an individual permit under paragraph (b)(3)(iii) of this section.

§ 122.28 [Amended]

3. In redesignated paragraph 122.28(b)(3)(ii), the reference: "(b)(2)(i)" is revised to read "(b)(3)(i)".

4. In paragraph 122.28(c)(3), the reference: "122.28(b)(2)(i) (A) through (F)" is revised to read "122.28(b)(3)(i) (A) through (G)".

Subpart C—Permit Conditions

5. Section 122.44 is amended by revising paragraph (i)(2) and adding paragraphs (i)(3) through (i)(5) to read as follows:

§ 122.44 Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs, see § 123.25).

(i) * * *

(2) Except as provided in paragraphs (i)(4) and (i)(5) of this section, requirements to report monitoring results shall be established on a case-by-case basis with a frequency dependent on the nature and effect of the discharge, but in no case less than once a year. For sewage sludge use or disposal practices, requirements to monitor and report results shall be established on a case-by-case basis with a frequency dependent on the nature and effect of the sewage sludge use or disposal practice; minimally this shall

be as specified in 40 CFR part 503 (where applicable), but in no case less than once a year.

(3) Requirements to report monitoring results for storm water discharges associated with industrial activity which are subject to an effluent limitation guideline shall be established on a case-by-case basis with a frequency dependent on the nature and effect of the discharge, but in no case less than once a year.

(4) Requirements to report monitoring results for storm water discharges associated with industrial activity (other than those addressed in paragraph (i)(3) of this section) shall be established on a case-by-case basis with a frequency dependent on the nature and effect of the discharge. At a minimum, a permit for such a discharge must require:

(i) The discharger to conduct an annual inspection of the facility site to identify areas contributing to a storm water discharge associated with industrial activity and evaluate whether measures to reduce pollutant loadings identified in a storm water pollution prevention plan are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed;

(ii) The discharger to maintain for a period of three years a record summarizing the results of the inspection and a certification that the facility is in compliance with the plan and the permit, and identifying any incidents of non-compliance;

(iii) Such report and certification be signed in accordance with § 122.22; and

(iv) Permits for storm water discharges associated with industrial activity from inactive mining operations may, where annual inspections are impracticable, require certification once every three years by a Registered Professional Engineer that the facility is in compliance with the permit, or alternative requirements.

(5) Permits which do not require the submittal of monitoring result reports at least annually shall require that the permittee report all instances of noncompliance not reported under § 122.41(l) (1), (4), (5), and (6) at least annually.

[FR Doc. 92-7279 Filed 4-1-92; 8:45 am]
BILLING CODE 6560-50-M

DRAFT Issue Statement (5th Revision)

Date: December 16, 1992 (Revised to update list of participants)

Title: Demographic Information Consensus Group

Activity: Determining regional needs for demographic data and establish guidelines for the development and maintenance of discrete demographic summaries and projections.

Chairman:

<u>Name</u>	<u>Agency</u>	<u>Telephone</u>	<u>FAX</u>
Dale Friedley	Manatee County Property Appraiser	(813) 748-8208	749-7187

Co-Chairman:

Charlie Dye	Pinellas County Property Appraiser	(813) 462-3840	462-3448
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Participants:

<u>Name</u>	<u>Agency</u>	<u>Telephone</u>	<u>FAX</u>
Bob Aangeenbrug	Dept of Geography, USF	(813) 974-2386	974-2668
Sheron Beauchamp	H'boro Co Public Schools	(813) 272-4093	272-4073
Nancy Blackwelder	Pinellas Co Public Schools	(813) 588-6203	588-6441
Dan Blood	H'boro Co Plng & Dev'tment	(813) 272-5710x164	272-6068
Kathryn Burbridge	Pasco Co Growth Mgmt	(813) 847-8193	847-8084
David Crabtree	Eco Plng/Forecast; TECO	(813) 228-4464	228-1670
Wendy Diamond	Research, Tampa Tribune	(813) 259-7950	259-7935
Mike Flanery	HRS/Pinellas Co Health	(813) 538-7277x105	538-7293
Pat Gehant	Juvenile Welfare Board	(813) 521-1853	528-0803
Bill Lofgren	TBRCC	(813) 577-5151	570-5118
Ed Lynch	Florida Power	(813) 886-5669	866-4994
Lee Marsh	Pinellas Co Planning	(813) 462-4751	462-4155
Lee Martin	Hillsborough Co Schools	(813) 272-4079	272-4073
Ted Micceri	USF Research	(813) 974-5513	974-5515
Robert Morris	Hillsborough Co GIS	(813) 272-5912x3232	272-6458
Marlene Mueller	Pinellas Co Public Schools	(813) 588-6210	588-6202
Lois Sorensen	SWFWMD	(904) 796-7211x4283	754-6885
Steve Totten	Pasco County GIS Dept	(813) 847-8140	847-8084
Kristine Williams	CUTR/USF	(813) 974-3120	974-5168
Rick Windham	Manatee County LIS	(813) 749-3075	749-3086

Problem Description:

Introduction

Demographic information represents the single most important independent variable in evaluation and analyses associated with local government comprehensive plan monitoring and compliance evaluation. Though standard sources of population information exist and will continue to do so, these sources must be reviewed and manipulated prior to use in the evaluation of comprehensive plan elements. The principle shortcomings of current sources are the limited geographical delineation of estimates and the lack of quality population projection techniques that can be used by communities in future facilities planning. The availability of modern geographical data bases related to the 1990 Census and other land data sources that are under development in communities can assist greatly in development of population distribution and projection methodologies. It is imperative, however, to coordinate the data collection techniques and evaluation methods related to population to avoid substantial problems in using this information in multi-jurisdictional evaluations similar to those required by the Tampa Bay Regional Planning Council and the Southwest Florida Water Management District.

Demographic information represents the most common independent variable used to establish Levels of Service (LOS) related to growth management plan elements in Florida local governments. Population summaries also represent data that are used strategically by most state and regional agencies for a variety of critical planning and service delivery functions. Therefore, population estimates for various jurisdictions and zones used in plan element compliance evaluation should be as accurate as possible. To this point, official population estimates have consisted of decennial census information estimates for small geographical areas and annual population updates from the Bureau of Economic and Business Research (BEBR) that are produced for each city/place and county. The advent of modern automated land information systems have opened the door to a large number of potential methods for more accurately distributing official population updates, generating accurate population updates locally, generating discrete population projection estimates, and portraying these numbers dynamically and effectively using mapping options available in geographic information systems. A cursory review of current development strategies for population data administration indicates that most agencies are considering a wide variety of approaches to the problem.

Problem Statement

To prevent possible inconsistencies among communities in population estimates, it is necessary to coordinate development of population and related data bases and address the following factors which hinder consistent demographic information management:

- The varied application of demographic data in plan elements, both in the geographic jurisdictions within which plan compliance must be monitored, and use of population as an independent variable in Level of Service (LOS) compliance evaluation;
- Population estimates for cities and counties are only available annually;
- Lack of standard methods for quality controlling, distributing, or projecting existing population estimates;
- Lack of focused application of modern census demographic data products to assist in resolving problems 2 and 3 above;
- Lack of information on other land information data sources that could assist in demographic data administration such as construction permit and property appraisal information;

- Lack of focused application of geographic information system technology for demographic data administration other than that supplied by individual GIS vendors;
- Lack of common understanding of the impact perennial and seasonal population and/or dwelling unit information has on LOS assessments and standards; and
- Problems managing demographic information in services areas that fail to nest consistently.

Potential Benefits:

Numerous benefits accrue through the standardization of data formats used in cataloging and retrieving demographic information.

- Standard measurements procedures allows for sharing of data among organizations;
- Shared expertise and experience among organizations interested in demographic data sources;
- Reduced time developing demographic information administration activities within participant organizations.

Ongoing Activities:

- Identification of the Water Management District activities and needs for demographic data;
- Comprehensive Plan Subcommittee of the Department of Community Affairs (DCA) will be queried for needs;
- Coordinate findings and conclusions of activity with results of interagency water use and population data meeting held among Water Management Districts, DER, and USGS (See Background Package).

Goal:

Develop a consistency in demographic measurement with standardized terminology and protocols that will permit access, transfer, and use of data across all levels of government.

Objectives:

1. Identify methods for generating small area population estimates and projections.
2. Prepare a catalog documenting data sources identified as useful in population estimation and projection.
3. Develop protocols for transfer of population related data among participants.
4. Develop plan to support consistent population estimation and projection methods at agencies within the region.
5. Provide for the future by keeping data bases updated within each organization.

6. Increase user awareness of the demographic data bases, the complexity of their structure and how they may be used.

Actions:

- 1.1 Discuss and document techniques for developing population distribution and aggregation estimates and propose a standard strategy for generating estimates that are useful for regional activities. Employ a strawman review method for this evaluation (See Atch A).

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Dale Friedley/Manatee Co LIS/(813) 748-8208

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 1.2 Determine additional data requirements and methods needed to model alternative populations and population change estimates. Four specific alternative population issues will include but need not be limited to seasonal population estimates, changes in persons per household estimates, population reduction modeling, and alternative approaches to assessing impact on population by permits and other development activities.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Mike Flanery/H&RS/(813) 538-7277

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 1.3 Recommend statistical techniques and additional data requirements needed to develop small area population forecasts.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Lois Sorensen/SWFWMD/(904) 796-7211

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 2.1 Document critical data sources needed to support the methods and strategies for population distribution and forecasting recommended in Action 1.1 through 1.3, using Data Descriptive Survey. (See Initial Data Base List, Atch B)

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Robert Morris/H'Boro Co GIS/(813) 272-5912 x3232

Co-Leader: Charlie Dye/Pinellas Co/(813) 462-3840 SC 570-3840

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 2.2 Develop and distribute a questionnaire to developers and users of land information critical to population estimations to determine current collection, update, and application of the data sources documented in

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Charlie Dye/Pinellas Co/(813) 462-3840 SC 570-3840

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 2.3 Produce a briefing to the Regional Advisory Committee that outlines the critical data sources and current collection and maintenance strategies among local governments in the region.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Dale Friedley/Manatee Co LIS/(813) 748-8208

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 3.1 Describe scenarios to illustrate the transfer of demographic and related data sources between participant organizations.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Name/Position, Agency/Telephone

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 3.2 Develop standard neutral form for each critical land information resource documented in activity 2.1 that may be used to transfer population and related data sources among agencies within the region.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Dale Friedley/Manatee Co LIS/(813) 748-8208

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 3.3 Elicit formal responses from all participants to determine their current or potential future abilities to generate data in forms recommended in activity 3.2.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Name/Position, Agency/Telephone

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 4.1 Formally describe techniques for spatial aggregation, spatial disaggregation, and temporal projection of demographic information recommended for regional demographic data administration.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Name/Position, Agency/Telephone

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 4.2 Develop briefing recommending distribution and projection methods and present to the Regional Advisory Committee and participant organizations.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Name/Position, Agency/Telephone

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 5.1 Develop briefings from each participating organization describing proposed strategies for keeping data bases current.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Robert Morris/H'Boro Co GIS/(813) 272-5912 x3232
Charlie Dye/Pinellas Co/(813) 462-3840 SC 570-3840

Action Group Members:

Name	Agency	Telephone
Dale Friedley	Manatee Co LIS	(813) 748-8208
Steve Totten	Pasco Co	(813) 847-8140
Charlie Dye	Pinellas Co	(813) 462-3840

Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

- 6.1 Develop and distribute regional plan for the sharing information sources critical to demographic information administration including strategies for sharing parcel-based data sets.

Type of Action: Critical/Dependent/Independent to (list all other objectives that this action is either critical to or dependent/independent upon).

Action Leader: Name/Position, Agency/Telephone

Action Group Members:

Name	Agency	Telephone
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Start Date:

Completion Date:

Cost of Action:

Progress Report: State whether a one-time or recurring report and to whom it should be addressed.

Attachments

- A. Strawman Population Distribution/Projection Methodology
- B. Initial Data Base List

ATTACHMENT A

STRAWMAN POPULATION DISTRIBUTION/PROJECTION METHODOLOGY

STRAWMAN POPULATION DISTRIBUTION/PROJECTION METHODOLOGY

I. Inventory and compile special data sources at agency to aid in population evaluation and monitoring.

- a. Converted and adjusted TIGER data base
 - 1. Corrected address ranges
 - 2. Improved geometric location
 - 3. Corrected census attributes
- b. 1990 Census PL 94/171 relational data base
- c. 1990 Census STF1 in relational data base
- d. Converted permit administration data
- e. Permit geocode enhancement data
- f. Permit impact summary tables
- g. Parcel centroid data base
- h. Annual BEBR county/city/population summaries
- i. Automated map files for all critical geozones needed in comprehensive plan evaluation. Those common to all agencies are highlighted:
 - 1. Traffic Analysis Zones*
 - 2. Capital Improvement Plan Construction Districts
 - 3. Planning and Analysis Areas (Planning District)*
 - 4. Sanitary Sewer Collection Areas
 - 5. Water Distribution Area Extent
 - 6. Solid Waste Collection Area
 - 7. Census Tracts*
 - 8. Fire Districts
 - 9. Sections*
 - 10. Future Land Use Areas
 - 11. Zip Codes
 - 12. Precincts
- j. Composite geozone polygon file and relational attribute table
- k. Data base of unit counts by section from Appraisal/Assessment System
- l. Future land use population density impact tables

II. Recommend geoprocessing techniques for development population distribution variables

- a. Develop composite overlay attribute table relating area of polygons to all associated geozones required for analysis
- b. Move composite overlay attribute data base to relational data base environment
- c. Establish 1990 Census estimates for each geozone class by establishing weighted distribution of populations to polygons using:
 - 1. Total Area of polygon
 - 2. Weighted area based on future land use of polygon
 - 3. Weighted area based on current unit count by section
- d. Retrieve CO permit data for time period of specific BEBR change estimations
- e. Correct section and parcel number geozone where possible
- f. Estimate impacts of each permit in the following categories
 - 1. Population

2. Employment
3. Industrial Employment
4. Gallons of Potable Water
5. Residential Trips
6. Pounds of Solid Waste
- g. Determine impact summaries by section for each impact category
- h. Connect impact summaries by section as map attributes to section map for thematic map production
- i. Develop aggregate area summary data base for specific geozone class relating zone, section, future land use intensity, and polygon area
- j. Distribute impacts by section into all polygons associated with section using area of polygon and intensity of future land use as distribution criteria
- k. Summarize impact values by the specific geozone class and write final reports

III. Population projection strategy

- a. Establish baseline 1990 population summaries for a specific zone class from II.c. above
- b. Define population impact summaries for each target BEBR estimation period from II.k. above
- c. Determine percentage of population impact for each zone and each estimation period
- d. Determine unincorporated population change data from official BEBR figures for each estimation period.
- e. Convert population impact summaries to population change based on ratio of total population impact and BEBR population change estimates
- f. Determine percentage change for each zone in each estimation period
- g. Obtain BEBR five year population change rates
- h. Use appropriate methodology to 'distribute' population change rates to individual geozones based on actual change rates following population distribution strategy
- i. Determine five- and 20-year population change equations for each geozone
- j. Apply five- and 20- year population change equations to estimate populations for each critical subsequent year
- k. Validate BEBR population estimates and projections and identify inconsistencies in this data when possible

IV. Proposed improvements to method

- a. Additional data bases
 1. Automated parcel map base
 2. Integrated zone boundary data base
 3. Proper geographical references on all permits
 - a. Parcel numbers
 - b. Situs addresses
 - c. Subdivision, block, lot references
- b. Assign individual geozone references to each permit
- c. Summarize impacts by zone directly from geocoded permit records
- d. Improvements in population impact methods for each permit
- e. Standard procedure for annually determining five- and 20-year population impact rates for each geozone

ATTACHMENT B
INITIAL DATA BASE LIST

INITIAL DATA BASE LIST

(Support Action 1.2; Initial List for Action 2.1)

1. Converted and Reconstructed TIGER File Data Base -- A version of the TIGER data base provided by the US Census Bureau maintained in the native structures required by the GIS environment managed by Regional Advisory Committee Members. The structure(s) maintained should provide access to:
 - a. Road Network Features - improved geometrically as required.
 - b. Topologically clean census geozone assignments for at least tract, block, and place. These data bases should be in forms available to spatial overlay procedures available in the GIS software environments.
 - c. Access to address ranges assigned to road network features, corrected or enhanced as required.
2. Other Geozone Boundary Files -- Additional geozone boundary data bases in forms compatible with Census TIGER tract, block, and place and maintained in structures useful to spatial overlay procedures available in GIS software environments. Recommended additional geozones include: .
 - a. Traffic Analysis Zones
 - b. Public Land Survey System Sections and other Original Survey Grants, if any
 - c. Zip Codes
 - d. Precincts
 - e. Future Land Use Areas
 - f. Political Boundaries Including US House, State Senate, State House, and County/City Commission Districts
 - g. Planning Areas Use for Level of Service Performance Evaluations in the following Comprehensive Plan Elements (Manatee County's Zones provided for examples):
 1. Traffic Circulation (Traffic Analysis Zones)
 2. Mass Transit (Census Tract, County Boundary)
 3. Potable Water (Water Service Area Extent)
 4. Wastewater (Sanitary Sewer Collection Areas)
 5. Solid Waste (Solid Waste Service Area Extent)
 6. Stormwater (Stormwater Management Plan Basin and Subbasin)
 7. Capital Improvements Plan (CIP Construction District)
 8. Fire Service/EMS Districts
 9. Evacuation Plan Flooding Zones
3. 1990 Census PL 94/171 Data Table -- Complete contents of PL 94/171 data base maintained in a table within the preferred relational data base management environment within each RAC membership organization. Data base should include minimally, records for all geographical zones managed in data base 1.b. above.
4. 1990 STF1a/b and STF3a/b Data Tables -- Complete contents of the STF1 and STF 3 data bases as they become available. Data should be maintained in a table available to the preferred relational data base management environment within each RAC membership organization. Data base should include minimally, records for all geographical zones managed in data base 1.b. above.

5. Permit Administration Data Table -- Data base of all issued construction permits. The coverage of the data base should be all permits issued by communities within the county of issuance. Each permit should have at least one of the following geographical identifiers:

- a. Parcel Information Number
- b. Situs Address
- c. Subdivision Lot, Block

Each permit should be geocoded with the original survey section or grant that the permit falls within a code indicating the community issuing the permit. Resource information on the permit can be as desired by the community, however, a permit type code, a number of units count, a number of bedrooms count, and the size of the floor area for the construction permit should be included.

6. Permit geocode enhancement data table -- Data base of use in assigning critical geozones to each permit record maintained in the permit administration data table. Data base should include one record for each known parcel and/or occupancy within the coverage area of the RAC membership organization. Each record for a parcel/occupancy should have a minimum of the following data items:

- a. Parcel Information Number
- b. Situs Address coded to standards adopted by each county
- c. Consistently coded Situs Address suffix identifying the occupancy unit
- d. Subdivision/condominium name, Sub/condo number, block name, lot number, if applicable
- e. PLSS Township
- f. PLSS Range
- g. PLSS Section
- h. Other Original Survey Identifier, if applicable
- i. Place code

Data table should represent the full coverage area of the RAC participant community and should be available to the preferred relational data base management system maintained by the participant community.

7. Permit impact summary table -- Data base that assigns a series of impacts to each permit classification used in the permit administration data table described above. This table should have the permit type and short and long descriptions of the permit class. The remainder of the table should be a number of permit impact data groups, each group having four elements. They are:

- a. Permit Impact Name
- b. Permit Impact Long Description
- c. Permit Resource Variable Name Used in Impact Computation
- d. Per Unit Impact Computation Factor

Permit impact data groups will be determined following further discussions; however, two standard groups will be potential population impact and potential employment impact. Population impact per unit factors will likely be based on number of units. Employment impact per unit factors will likely be by square foot of base construction.

8. BEBR official population count tables -- Population count records for each BEBR estimate issued for the coverage of the RAC participant community. Each population count record will retain minimally the year of the count, the place associated with the count, and the total population estimated.
9. BEBR official population projection tables -- Population change rate data records for each BEBR estimate issued for coverage area of the RAC participant community. Each population projection record will retain minimally, the year projection was issued, the 'to-year' that the rate is applicable to (e.g., rate until 2010), the annualized population change rate expressed in persons per year.
10. Unit count summaries by section -- An estimated unit county summary data base containing the number of equivalent residential units and the amount of commercial/industrial base floor space for each Public Land Survey System Section within the coverage area of the RAC participant agency. Estimates will be based on the definition of a residential unit and the base floor area of a commercial industrial structure as determined by the consensus group. The data table will contain a minimum of the following fields:
 - a. Township of section
 - b. Range of section
 - c. Section number
 - d. Year of estimate
 - e. Month of estimate
 - f. Number of equivalent residential units
 - g. Amount of commercial/industrial base floor area
11. Parcel Centroid Data Table -- A data table containing a single coordinate location for each ownership parcel represented in the permit geocode enhancement data table. The table will simply relate the parcel information number to the estimated size of the parcel and the center point coordinate of the parcel retained in the coordinate system recommended by the consensus group.
12. Future Land Use Population Density Impact Tables -- Data table containing the maximum build-out rates for each Future Land Use class identified by the RAC participant agency. This data table will minimally, contain the maximum number of development units per acre and the maximum expected commercial/industrial floor space per acre for each unique future land use zone.
13. Composite geozone polygon file -- A composite data base developed using the spatial overlay procedure available to each RAC participant agency that represents the composite overlay of all geographical zones available from data basis 1.b. and 2 above.
14. Composite geozone attribute table -- A data base table available in the preferred relational data base management environment at each RAC participant agency relating the area of each unique composite geozone polygon and the geozone code associated with the polygon for each geographical zone available in data bases a.b. and 2 above.

APPENDIX 7

FINAL DRAFT Issue Statement (2nd Revision)

Date: July 29, 1992

Title: Cockroach Bay Data Consolidation

Activity: To identify a variety of available natural resource layers and data for the development of a plan for the management of Cockroach Bay and to transfer the data in useable format to the Hillsborough County Geographic Information System (GIS) Department.

Chairman:

<u>Name</u>	<u>Agency</u>	<u>Telephone</u>	<u>Suncom</u>
Charles M. Courtney	EPC, Hillsborough Co	(813) 272-7104	543-7104

Co-Chairman:

Al Eisenmenger	Hillsborough Co CCPC	(813) 272-5940	543-5940
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Participants:

<u>Name</u>	<u>Agency</u>	<u>Telephone</u>	<u>Suncom</u>
Elie Araj	H'boro Co Eng Svcs/Stormwatr Design	(813) 272-5912x3614	543-5912
Gene Boles	Dir, H'boro Co Plng & Dev Mgmt Dep	(813) 272-5710x171	543-5710
Peter Clark	Tampa Bay Reg Plng Council	(813) 577-5151	586-3217
Steve Dicks	Mapping & GIS Mgr, SWFWMD	(904) 796-7211x4210	628-4150
Dale Friedley	Manatee Co Prop Appr Off	(813) 748-8202	
Dave Gowan	STORET Coord/DER, Tallahassee	(904) 487-0505	277-0505
Holly Greening	Tampa Bay National Estuary Program	(813) 893-2765	594-2765
Kurt Gremley	H'boro Co Endangered Lands Acq Prog	(813) 272-5810	543-5810
Carl Harker	Natl Weather Svc (SW Agri Ctr)	(205) 844-4514	
Rob Heath	H'boro Co Parks Dept	(813) 854-1322	
Steve Hodges	Homer Hoyt Ctr, FSU	(904) 644-2870	
Mike Holtkamp	SWIM/SWFWMD	(813) 985-7481x2212	
Walid Houtom	H'boro Co Eng Svcs/Stormwatr Design	(813) 272-5912x3614	543-5912
Bob Keim	H'boro Co GIS Manager	(813) 272-5912x3202	543-5912
David Kriz	Soil Conservation Service	(904) 377-1092	
Jordan Lewis	Environ Health; Florida H&RS	(813) 272-6320	543-6320
Robin Lewis	Lewis Environmental Services, Inc.	(813) 889-9684	
Thomas Lo	SWFWMD	(904) 796-7211x4200	628-4097
Bill Lofgren	Facilitator, TBRCC	(813) 577-5151	586-3217
Gail MacAulay	Florida MRI/DNR	(813) 896-8626	523-1011
Susan Mariner	H'boro Co Plng & Dev Mgmt Dept	(813) 272-5710x171	543-5710
Robert Pace	U.S. Fish & Wildlife Service	(305) 562-3909	
Yvonne Stoker	USGS	(813) 228-2124	
Nick Toth	Cockroach Bay Aquatic Pres Mgr	(813) 620-6161	542-6161
Bill Veon	H'boro Planning & Development Mgmt	(819) 272-5710	

Problem Description:

Introduction

During January, 1992 Hillsborough County Commissioner Ed Turanchik formed a task force to discuss a number of issues relative to the Cockroach Bay Aquatic Preserve. The Preserve bounds an area which includes the headwaters and oligohaline habitat for the eastern portion of the Middle segment of Tampa Bay (Figure 1). Cockroach Bay has some of Tampa Bay's most pristine habitat and generally good water quality. The Federal Coastal America's program has recently funded \$300,000 toward an estuarine restoration project on Cockroach Bay's northern shore and the State of Florida's SWIM program has dedicated at least twice as much money toward the same restoration project. Additionally, there has been an award of a \$400,000 EPA Clean Water Act Section 319 (h) Nonpoint Source Pollution Set-Aside grant to fund construction of a stormwater system designed to treat agricultural runoff into Cockroach Bay. This grant was designed specifically to address pollution abatement strategies for sediment contamination problems from agricultural runoff. Once in place, such massive public expenditures along with the rare and pristine nature of the Bay carry a public mandate to protect the investment and manage for the protection of the resource.

Concurrently, and as a result of previous direction by the County Commission, the Hillsborough County City-County Planning Commission had been asked to develop a management strategy for Cockroach Bay. A copy of the Comprehensive Plan Amendment drafted as a primary component of the strategy is included in Attachment A.

The Task Force formed a subcommittee under EPC coordination to analyze what data might be pertinent to the further implementation of the strategy and where the data might reside. The subcommittee developed a matrix (Attachment B) of data types and a list of the potential producers of that data. The plan amendment called for the Hillsborough Board of County Commissioners (BOCC) to establish the Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) who will be the primary user but data will be fed to them after consolidation of data in the County's GIS under the guidance of the Hillsborough County GIS Coordinator.

However, although much data are available to help implement a management strategy, it has been difficult for the Planning Commission to easily avail itself of that data. There is also a developing sense of urgency that plan development proceed quickly, not only because of the expensive restoration project on the Bay's north shore, but also because there is initial evidence already accumulating that suggest that there are chronic and newly recognized problems in the Bay related to water quality and seagrasses. For the long run, both the seagrass and water quality issues are addressed in the management strategy. There will be, undoubtedly, many other issues that could be addressed by the strategy as it is developed by CAPMAT, but the Task Force concluded that no strategy implementation should take place until certain base natural resource data were compiled by the County GIS Department and made available to the CAPMAT. For now, the planning area is bounded on the west by Tampa Bay, on the north by the north shore of the Little Manatee River, on the south by the Manatee County line, and on the east by Highway 301. Because drainage basins will undoubtedly be needed to implement the management strategy, this area may be expected to enlarge after some discussion.

Problem Statement:

- Seagrasses are suffering long-term, cumulative damage from boat propeller scarring.
- Robin Lewis (1991-Personal Communication) estimates suggest that unless some management action is quickly taken, severe and permanent damage could occur in this Preserve at a time when seagrasses are making a recovery from other historical damaging effects. Seagrasses

represent a vital link in the estuarine food chain and are a nursery ground for many of Tampa Bay's species including shrimp and trout.

- Chlordane and Mirex (two agricultural pesticides toxic to freshwater and marine organisms) levels are high.
 - Documented by NOAA's most recent Status and Trends Report (Long e. al., 1991), the presence of these persistent, banned pesticides in the Estuary could reflect pathways of stormwater runoff that need attention to prevent possible illegal continued use.
- Stormwater is a pollutant despite new regulations.
 - Stormwater's biggest components are nitrogen and phosphorous, nutrients that cause the growth of algae that robs the water of oxygen. New regulations keep the most polluted runoff from reaching the bay untreated, but older homes, parking lots and shopping centers continue to funnel the dirty residue straight to Tampa Bay, likewise effecting Cockroach Bay. (Tampa Tribune, 4/25/92)
- Shellfish harvesting is prohibited due to pollution.
 - Recently, (1991, c.f. Hesselman and Seagle, 1990) Florida DNR has discontinued shellfish bacteriological monitoring in Cockroach Bay Aquatic Preserve after prohibiting the area to shellfishing. FDNR's Comprehensive Shellfish Harvesting Survey looked at the concentrations of Fecal Coliform at a number of stations as an indicator of shellfish born human pathogenic bacteria and viruses. The majority of sampling stations were classified as Conditionally Restricted, an indication that the area is not so contaminated with poisonous and deleterious substances that consumption of shellfish after suitable purification would be hazardous, showing pollution sources ranging from non-point runoff, to wildlife, to agricultural runoff, to industrial discharges. However, three stations within Cockroach Bay showed wastewater treatment plant/septic plant sources and two of them were classified as Prohibited, an indication that fecal material, pathogenic microorganisms, of poisonous or deleterious substances are dangerously or unpredictably present in dangerous concentrations.
- High concentrations of metals and DDT are present.
 - In 1992, SWIM testing of sediments in some existing borrow pits of the Coastal America's restoration site showed high levels of some metals (e.g. silver) and the presence of DDT. Silver is a biologically nonessential, nonbeneficial conservative element that has been found to be toxic to freshwater and marine organisms.
- Exotic plant encroachment threatens biodiversity in the coastal zone.
- Agricultural runoff is a major source of pollution.
- Habitat modification and destruction are prevalent.

The wetlands and uplands surrounding Cockroach Bay are currently highly disturbed, with almost three-fourths of the total area in farm fields, mined areas, and residential (trailer park) areas. More than 4,300 acres of low-salinity marshes and associated coastal upland habitats (important wildlife and fish

habitat) have been lost to development in the Tampa Bay watershed. Ongoing Cockroach Bay Restorative Alliance (COBRA) restoration efforts will rehabilitate some of these critical habitats in the Cockroach Bay Basin.

Potential Benefits:

- The Hillsborough County City-County Planning Commission will have a multilayered spatial and database natural resources background from which to develop a Comprehensive Plan overlay study that identifies solutions to the listed problems.
- Other agencies, such as the Environmental Protection Commission of Hillsborough County; Hillsborough County Planning and Zoning, Stormwater Utility, Hillsborough County Environmental Lands Acquisition and Protection Program (ELAPP); and Southwest Florida Water Management District (SWFWMD) will be able to access and use a consolidated data base for the development of rules, ordinances and purchases which further the management goals.
- Florida Department of Natural Resources is responsible for managing the Aquatic Preserve, but to date has not received adequate funding to follow through with a management plan. The agency will be supported in its efforts by local government.
- Manatee County will potentially benefit from the work consolidation of this project since portions of the county lie in the Aquatic Preserve's drainage basin.
- Tampa Bay's aquatic resources could gain additional levels of protection as a result of this project.
- Large Federal "Special Projects" such as the Federal Coastal American Program and \$400,000 EPA Clean Water Act Section 319 (h) Nonpoint Source Pollution Set-Aside grant will benefit from this data compilation effort as protection of the public investment.

Ongoing Activities:

Within the GIS/planning community there are a number of similar activities that can benefit from this endeavor and vice versa. Close coordination is necessary to share results and avoid duplication of effort.

- The Surface Water Improvement and Management Program (SWIM), as a partner in COBRA, has designated stormwater treatment as one of the key aspects of its design for the restoration of the north shore of Cockroach Bay. As such it is likely that data useful to that effort relating to stormwater basins, and surface and ground water quality and quality information that will be consolidated in this project will be useful to COBRA. Similarly, COBRA's overall goals of improving surface water quality can gain added support via a management plan at the local governmental level. SWIM is also mapping seagrasses and sampling water quality, two examples of data redundancy that they will wish to see consolidated for the widest possible benefit. SWIM annually contributes about \$500,000 to the overall Tampa Bay effort, with Cockroach Bay as one beneficiary.
- SWFWMD has designated the entire area of Cockroach Bay as part of a Water Use Cautionary Zone. It may develop that the overlay study developed by the Hillsborough County City-County Planning Commission under this project provides SWFWMD with an additional avenue of managing a water shortage problem.

- Hillsborough County's Stormwater Utility is responsible for National Pollution Discharge Elimination System (NPDES) permitting for the County. The centralization of spatial and database water resource information for this project could assist them in gaining some information they have yet to collect and the development of a management plan can provide an avenue for addressing stormwater pollution problems in this project area.
 - The National Estuary Program has established a number of objectives for data collection in Tampa Bay and the consolidation of this data will provide a wealth of background for a holistic look at one of their Bay segments, spending as much as \$5 million in the Tampa Bay area over five years. Seagrass and shoreline mapping are two examples of two potential data redundancies that can be consolidate for the widest possible benefit.
 - The Environmental Acquisition and Protection Program (ELAPP) provided funds for the acquisition of 651 acres of land around Tampa Bay which will benefit from habitat modification and restoration activities around Cockroach Bay..
 - Florida State University's Homer Hoyt Center in cooperation with the Florida Atlantic University/Florida International University Joint Center for Environmental and Urban Problems is conducting a study which proposes to evaluate the degree of consistency between the goals, objectives, policies, and implementation strategies contained in the SWIM, Aquatic Preserve and Local Comprehensive Plans and has chosen Cockroach Bay as one of two Tampa Bay sites where they will focus on aquatic preserve management and local government plans. A copy of the project description appears in Attachment C.
 - As mentioned in the introduction and benefits sections, there exists the Federal Coastal America Program and \$400,000 EPA Clean Water Act Section 319 (h) Nonpoint Source Pollution Set-Aside grant.
 - The Environmental Protection Commission of Hillsborough County is recipient of a grant from the Tampa Bay National Estuary Program to establish a demonstration project which will implement recommendations for data sharing as presented by the "Data Management Strategy for the Tampa Bay National Estuary Program." Employing the steps set forth in this Issue Statement, the project will develop information on the pitfalls to effective data sharing while demonstrating that widely divergent sources of data, important to local government, can be effectively imported for local use.
- Goal:** Compile and deliver to the Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT), base natural resource information necessary to implement the management strategy for Cockroach Bay.

Objectives:

1. Identify data needed by CAPMAT for the implementation of a Cockroach Bay management strategy.
2. Develop quality and accuracy reports for each targeted data set.
3. Integrate as far as possible, data management protocols developed by the Tampa Bay National Estuary Program (TBNEP).

4. Provide an orderly and efficient transfer of data to external users.

Actions:

- 1.1 Convene an initial Consensus Group of natural resources planners and technical experts for the purpose of:

- Refining Issue Statement
- Planning a brainstorming session to refine the matrix of targeted data types
- Identify leadership/composition of follow-on Action Group

Type of Action: Critical to Actions 2.1, 3.1, and 4.1

Action Leader: Bill Lofgren/TBRCC/(813) 577-5151

Action Group Members: N/A

Start/Completion Date: 6/15/92 - 7/9/92

Costs of Action: To be determined

Progress Report: A one-time record of problems encountered and recommended solutions to be provided to Consensus Group Chairman for inclusion in report to TBNEP.

- 1.2 Finalize and publish a matrix of target data after reviewing agency comments and determining location of important, relevant data for transfer.

Type of Action: Critical to Actions 2.1, 3.1, 4.1

Action Leader: Al Eisenmenger/HCCCPC/(813) 272-5940

Action Group Members:

Al Eisenmenger	HCCCPC	(813) 272-5940
Chuck Courtney	H'boro Co EPC	(813) 272-7104
Bob Keim	H'Boro Co GIS	(813) 272-5912 x3202

Start/Completion Date: 6/25/92

Costs of Action: None

Progress Report: A short, written report of the minutes and results of the Preliminary Meeting, provided to Consensus Group Chairman for inclusion in report to TBNEP. Report should list any problems encountered in the meeting and recommended solutions.

- 2.1 Distribute to each agency, the Data Description Summary and Contact formats, and NEP protocols, if available; for compilation by agency GIS/Data designee, and brought to Preliminary Meeting.

Type of Action: Independent

Action Leader: Bill Lofgren/TBRCC/(813) 577-5151

Action Group Members:

Chuck Courtney	H'boro Co EPC	(813) 272-7104
Bob Keim	H'Boro Co GIS	(813) 272-5912 x3202
GIS Coordinator	HCCCPC	

Start/Completion Date: 6/25/92

Costs of Action: None

Progress Report: A one-time, short written report on the problems encountered in agency follow through (internal communications, glitches, etc.) provided to Consensus Group Chairman for inclusion in report to TBNEP.

- 2.2 Agencies insure that the Data Description Summary and Contact formats are completed prior to Preliminary Meeting

Type of Action: Dependent upon Action 2.1

Action Leader: Bill Lofgren/TBRCC/(813) 577-5151

Action Group Members: N/A - Each agency in matrix

Start Date: 6/15/92

Completion Date: 6/25/92

Costs of Action: To be determined

Progress Report: A one-time, short written report on the aspects of how successful action items 2.1 and 2.2 were completed.

- 2.3 Review Data Description Summaries and Contact Summaries, and assign to each agency, preparation of Quality and Accuracy Reports and Data Dictionary for relevant data held by that agency; convene Consensus Groups to refine data. Review Q&A reports and protocols and query agencies described data to insure an understanding of transformation software needed for transfer and to conceptualize how divergently formatted data can be transferred to Hillsborough City-County Planning Commission in a way that will assist in their ultimate goal. (This may require some manipulation of symbols, scales, etc, as well as digitization and input of EPC data may be necessary at this step). The completion of this step includes the procurement of necessary software by completion date.

Type of Action: Dependent upon Actions 2.1, 2.1; Critical to 2.4

Action Leader: Bob Keim/H'Boro Co GIS/(813) 272-5912 x3202

Action Group Members: Each agency in matrix; Keim's and HCCCPC GIS staffs.

Start Date: 7/1/92

Completion Date: 8/31/92

Costs of Action: To be determined

Progress Report: A short written report of monies needed for each expenditure for extraordinary personnel. Software or other costs necessary to complete each data transfer should be approved by the Chairman before the work is undertaken. By 8/1/92, a schedule of anticipated costs necessary to complete all data transfers should be provided to Consensus Group Chairman. Finally, a written report listing the types of purchases, expenses, as well as a discussion of the technical problems encountered should be provided to the Chairman by the completion date.

- 2.4 Negotiate, import and prepare all targeted data for transmittal to the Hillsborough City-County Planning Commission.

Type of Action: Dependent upon Actions 1.1, 1.2, 2.1, 2.2, 2.3

Action Leader: Bob Keim/H'Boro Co GIS/(813) 272-5912 x3202

Action Group Members: Each agency in matrix; Keim's and HCCCPC GIS staffs.

Start Date: 6/25/92

Completion Date: 12/24/92

Costs of Action: To be determined

Progress Report: Brief monthly written reports to Chairman detailing status toward objective completion, problems encountered, recommended solutions and expenses incurred.

- 3.1 Prepare two status reports to the TBNEP; the first summarizing preliminaries and progress on the first two objectives; the second at the completion of the goal.

Type of Action: Independent

Action Leader: Chuck Courtney/H'Boro EPC/(813) 272-7104

Action Group Members:

Bob Keim

H'Boro Co GIS

(813) 272-5912 x3202

Bill Lofgren TBRCC (813) 577-5151

Start Date: First report - 08/31/92 Second report 01/15/93

Completion Date: First report - 09/15/92 Second report 01/31/93

Costs of Action: To be determined

Progress Report: To include a written summary of each action item, including an estimate of percent of completion; funds spent and remaining funds for each task; an analysis of measures of success with specific observations on the problems encountered and recommended solutions for future efforts.

4.1 Copy for county base map and then transfer all data/layers to the Hillsborough City-County Planning Commission.

Type of Action: Dependent upon Actions 1.1, 1.2, 2.1, 2.2, 2.3, 2.4.

Action Leader: Bob Keim/H'Boro Co GIS/(813) 272-5912 x3202

Action Group: County and Hillsborough City-County Planning Commission GIS Staffs

Start Date: 12/24/92

Completion Date: 01/15/93

Costs of Action: To be determined

Progress Report: Provide Chairman with a brief summary of any final problems and recommended solutions.

ATTACHMENTS

- A. Cockroach Bay Plan Amendment
- B. Data Type Matrix (Revised 7/9/92)
- C. Coordination of SWIM, Aquatic Preserve, and Local Government Comprehensive Plans
- D. Data Descriptive Survey Instructions (Withdrawn - See Appendix 4)

ATTACHMENT A

CPA 92-03 (COCKROACH BAY STUDY)

CPA 92-03 (Cockroach Bay Study)

A primary focus of the plan amendment process includes striking-through (deleting) all existing policies dealing with Cockroach Bay in the Coastal Management Element (CME) and Conservation and Aquifer Recharge Element (CARE) and transferring them, as revised below, with a cross-reference (in part in order to comply with Rule 9J-5, FAC) to the Future Land Use Element (FLUE) under an existing area of the Element, Section C - Special Areas of Concern. The new section will be entitled "The Cockroach Bay Aquatic Preserve Planning Area." Locating all policies dealing specifically with the Cockroach Bay Aquatic Preserve in this section will better recognize the unique characteristics of the Planning Area, as well as focusing all of the pertinent policies in one place for ease of reference. In addition, the FLUE is the primary element of the Plan, the focus of the most public attention, and the most widely distributed.

In addition to relocated existing/revised policies, the new section will include a new goal and objective, and several new policies. Pertinent existing and revised CME and CARE policies to be included in the new section are shown below; *italics* represent additions; deletions are represented by ~~strike-throughs~~.

Section C - Special Areas of Concern (This is an existing section of the Future Land Use Element)

The Cockroach Bay Aquatic Preserve Planning Area

The Cockroach Bay Aquatic Preserve Planning Area is a unique area of special concern in Hillsborough County. The aquatic preserve designation is a recognition by the State of Florida of the area's outstanding biological resources and overall environmental qualities. As stated in the State's Cockroach Bay Aquatic Preserve Management Plan, "The major objective of the aquatic preserve management program is to ensure the maintenance of essentially natural conditions."¹ However, despite this stated intent, the lack of funding at the State level has not allowed the Florida Department of Natural Resources, which has primary management responsibility for the Aquatic Preserve program, to implement and enforce the provisions of the Management Plan as aggressively as may be necessary to protect the Preserve's natural resources. It is the intent of Hillsborough County to assist the State in protecting and managing this important natural resource, to improve its natural viability, and to increase its benefits to the citizens of Hillsborough County by adopting the following Goal, Objective and Policies:

¹ - Florida Department of Natural Resources, The Cockroach Bay Aquatic Preserve Management Plan, 1987.

GOAL: *To protect the natural resources of the Cockroach Bay Aquatic Preserve from environmental degradation and manage the Preserve's resources for the benefit and enjoyment of the citizens of Hillsborough County.*

Objective C-37: *By the end of 1993, the County will identify the geographic area wherein discharges are very likely to affect Cockroach Bay. Once this area has been identified, new permitted discharges in this area will be required to meet or exceed applicable federal, state, regional and local water quality standards through cooperation with the Environmental Protection Commission of Hillsborough County (EPC), the Southwest Florida Water Management District (SWFWMD), the Hillsborough County Public Health Unit (HCPHU) and the Florida Department of Environmental Regulation (FDER). As a means of ensuring this, the County will request these agencies to develop a system whereby 2-5% of permitted point and non-point discharge structures are monitored in the field (as-builts) to document that they are operating as permitted. By the end of 1993, the County will initiate a plan to address the restoration of water quality and aquatic habitat values throughout the Cockroach Bay Aquatic Preserve.*

(The following policy should be relocated from both the Coastal Management Elements (CME) and Conservation and Aquifer Recharge (CARE) (a cross-reference will be inserted to explain the changes and direct readers to the appropriate places) - proposed revisions are shown in *italics* or ~~strike-through~~)

Policy 4.5 (CME) 18.8 (CARE) C-37.1:

The County shall participate with the Florida Department of Natural Resources to fully implement the "Cockroach Bay Aquatic Preserve Management Plan" as specified in the *Mmanagement Pplan* guidelines.

(The following policies are recommended to be transferred from the Coastal Management Element (CME) (a cross-reference will be inserted in their place) - proposed revisions are shown in *italics* or ~~strike-through~~)

Policy 3.1 C-37.2:

The County shall ~~work with oppose by resolution any proposal by the~~ Department of Natural Resources, the Environmental Protection Commission of Hillsborough County (EPC) and the Hillsborough County Public Health Unit (HCPHU) to identify the sources of pollution responsible for the closure of to permanently close the Cockroach Bay Aquatic Preserve to public shellfishing, and, upon identification, will develop a program to identify means of eliminating such sources in a timely but cost-effective manner. ~~shall improve water quality to maintain the viability of shellfish resources by implementing Objective 1 and related policies thereunder.~~

Policy 3.2:

~~The County shall initiate an interlocal agreement with the appropriate regulatory agencies to ensure that land developments within the coastal area which discharge into receiving waters flowing into a "Conditionally Approved" or "Approved" Department of Natural Resources Shellfish Harvesting Area demonstrate non-degradation of water quality for all applicable discharges. (The Planning Commission recommends deleting this policy as no longer relevant as stated because FDNR has closed Cockroach Bay to shellfish harvesting and no other approved shellfish harvesting areas will be affected by this deletion).~~

Policy 2.9 C-37.3:

The County shall review, and *mitigate or restrict* as appropriate, all proposed development *likely to impact adjacent to the boundaries of the Cockroach Bay Aquatic Preserve* to ensure that water quality, shoreline or estuarine habitat degradation, either attributable to the development alone or in combination with other developments, does not occur.

(The following policies should be deleted or relocated from the Coastal Management Element (CME) and the Conservation and Aquifer Recharge Element (CARE) (a cross-reference will be inserted in their place) - proposed revisions are shown in *italics* or ~~strike-through~~)

Policy 4.4 (CME) 18.2 (CARE):

~~By 1990, the County shall initiate an interlocal agreement with the Florida Department of Natural Resources to ensure that the Cockroach Bay Aquatic Preserve is maintained in its essentially natural condition and protected from development that would adversely impact the environmental integrity of the Preserve. (The Planning Commission recommends deleting this policy because the drafting of such an agreement has been difficult for a number of reasons, this policy basically reiterates Policy C-37.1, and because this plan amendment will accomplish the same objective).~~

Policy 4.2 (CME) 18.4 (CARE):

~~The County shall seek to expand the boundaries of the Cockroach Bay Aquatic Preserve, where ecologically appropriate and beneficial, to promote more effective management of the natural system and its biological resources. (This policy has been incorporated as a task of the Management Team identified in Policy C-37.5)~~

Policy 4.3 (CME) 18.3 (CARE) C-37.4:

The County shall *seek to* establish a scientifically defensible protective buffer zone between the Cockroach Bay Aquatic Preserve and adjacent upland land uses to prevent degradation of water quality and aquatic vegetative habitats ~~in accordance with Policy 19.1 of the Conservation and Aquifer Recharge Element as part of the Cockroach Bay Overlay District Study called for in Policy C-37.13.~~

(The following policies are new)

Policy C-37.5:

By the end of 1992, the Board of County Commissioners shall establish a "Cockroach Bay Aquatic Preserve Management Advisory Team" (CAPMAT), with members representing the County, the Planning Commission, the Environmental Protection Commission, Hillsborough Community College, state and regional agency staff, concerned citizens and area landowners. The Team shall serve as an ongoing means of better managing the resources of the Cockroach Bay Aquatic Preserve. The Team will meet regularly and report periodically to the Board of County Commissioners and request Board action as necessary. The Board will designate appropriate staff for the Team. From time to time, Team meetings should be held in south County to encourage public input. The Management Advisory Team shall :

- 1. Assist the County with implementation of the Goal, Objectives and Policies that affect the Cockroach Bay Aquatic Preserve area;*
- 2. Identify the specific area of likely impact on the Aquatic Preserve, to be known as the "Area of Concern," based on review of the boundaries of the Aquatic Preserve, the Little Manatee River Watershed, and drainage basins which discharge to Cockroach Bay and the Aquatic Preserve;*
- 3. Identify concerns and problems that may affect the Preserve area;*
- 4. Identify research needs and collect data that may assist in resolving identified problems and concerns;*
- 5. Document the extent and relative health of seagrasses and identify sources of seagrass damage before recommending actions to ban boating or identify exclusionary areas in the Preserve;*
- 6. Identify an implementation procedure, thresholds and a timeline for review of applications for development approval within the defined Area of Concern to ensure compatibility with the intent of the Preserve;*
- 7. Review proposed comprehensive plan and land development code revisions that may impact the Area of Concern and recommending appropriate changes and other measures to further these Goals, Objectives and Policies;*
- 8. Investigate funding sources;*
- 9. Identify and propose technically and fiscally sound approaches and solutions to identified problems and concerns;*
- 10. Request the County to initiate a request to the Florida Department of Natural Resources and the Governor and Cabinet and the Legislature to expand the boundaries of the Cockroach Bay Aquatic Preserve, if deemed ecologically appropriate and beneficial, to promote more effective management of the natural system and its biological resources;*

11. *Assist in the development of public education maps and work with the appropriate authorities in the placement of markers clearly indicating boating channels and potential hazards in appropriate locations throughout the Cockroach Bay Aquatic Preserve. In addition, work to post manatee educational information and warning signs as needed throughout the Preserve;*
12. *In conjunction with the Southwest Florida Water Management District (SWFWMD), the Florida Department of Natural Resources (FDNR), the Tampa Electric Company (TECO) and other property owners, initiate a program to reverse the spread of noxious exotic plant species in the Area of Concern, with the goal of replacing exotics with viable desirable native plant communities. Such a program should include assessment of the extent of the problem, identification of the geographic focus of action, identification of costs and likely funding sources, assess the potential for a volunteer component of the program, and enlist the cooperation of affected private property owners, if any; and*
13. *Develop a means through which to base decisions and recommendations on sound, scientifically-defensible research in order to avoid arbitrary recommendations.*

Policy C-37.6:

By the end of 1992, the County, in conjunction with the EPC, SWFWMD, FDNR, TECO and other property owners, will develop a program to identify drainage system alterations that facilitate water quality and habitat value improvements in the Preserve. The Area of Concern shall receive priority as the County implements its stormwater management basin studies. The County will utilize a variety of mechanisms, such as the use of natural plant communities for the treatment of stormwater, detention of stormwater, and purchase of lands by the Environmental Lands Acquisition and Protection Program (ELAPP) for multiple use as wildlife habitat and stormwater management.

Policy C-37.7:

By the end of 1992, the County will request Hillsborough Community College to expand the focus at the Cockroach Bay Environmental Studies Center to include the study of land management practices such as exotic plant control and fire management. The Environmental Lands Acquisition and Protection Program can utilize the results of such studies to more effectively manage lands purchased throughout the Area of Concern.

Policy C-37.8:

The County will request the ELAP Program to purchase suitable parcels in the Area of Concern and incorporate site restoration projects that achieve water quality and/or habitat benefits to the Preserve.

Policy C-37.9:

By the end of 1992, the County will work with the appropriate authorities, including the Environmental Protection Commission and the Florida Department of Natural Resources, to implement means of protecting seagrasses from propeller dredging throughout the Cockroach Bay Aquatic Preserve.

Policy C-37.10:

By the end of 1992, the County will encourage all appropriate agricultural or construction operations within the Cockroach Bay drainage basin to develop and apply a Soil Conservation Services Soil Conservation Plan and implement Best Management Practices (BMPs). Upon completion of the County's Stormwater Management Master Plan for this area, the County will require the use of BMPs.

Policy C-37.11:

By the end of 1993, the County, in cooperation with EPC, the Hillsborough County Public Health Unit and other appropriate entities, will undertake a study to evaluate the impact of existing septic systems on water quality in the Area of Concern. If warranted, the County will initiate a program, by the end of 1995, to address and fund timely remediation of any identified water quality problems to the extent reasonably feasible.

Policy C-37.12:

By the end of 1992, the County will implement means of improving enforcement of marine conservation laws in the Cockroach Bay area, such as the dedication of an environmental deputy to the area. The primary purpose of such a deputy would be to educate boaters and fishermen about boating and safety laws, and secondarily to issue warnings and citations.

Policy C-37.13:

By the end of 1994, the Planning Commission will develop a Cockroach Bay Aquatic Preserve Overlay District that addresses such issues as land use, densities, setbacks, etc.

ATTACHMENT B

DATA TYPE MATRIX (REVISED 7/9/92)

DATA TYPE

MISSION

WEATHER SERVICE
ENVIRON. PROTEC. COMM.
HLSR. COUNTY DS
K.C. STORMWATER UTILITY
K.C. PARKS DEPARTMENT
ELAP
CITY-COUNTY PLANN. COMM.
T&P.C.
P.O.A.D.
O.H.R.S.
D.N.A.
O.E.A.
FISH & GAME COMM.
S.W.ILMUNFUND
U.S.G.S.
N.E.P.
CORP. OF ENGINEERS
MANATEE COUNTY
FLA. NATURAL AREAS INVENT.
U.S. FISH & WILD.

[illegible]

MISSION

WEATHER SERVICE
ENVRON. PROTECT. COMM.
HILLSB. COUNTY GIS
H.C. STORMWATER UTILITY
E.L.A.P.P.
CITY-COUNTY PLANN. COMM.
T.B.R.P.C.
P.D.A.D.
D.H.R.S.
D.H.R.
FISH & GAME COMM.
SWFWMD/SHMM
U.S.G.S.
N.E.P.
CORP OF ENGINEERS
MANATEE COUNTY
TAMPA ELECTRIC
FLA NATURAL AREAS INVENT
U.S. FISH & WILD

[illegible]

VS
DATA TYPE

MISSION

WEATHER SERVICE
ENVRON. PROTEC. COMM.
HLSB. COUNTY GS
H.C. STORMWATER UTILITY
E.L.A.P.P.
CITY-COUNTY PLANN. COMM.
T.B.R.P.C.
P.D.M.D.
D.H.R.S.
D.N.R.
D.E.R.
FISH & GAME COMM.
S.W.F.W.D.S.W.I.M.
U.S.G.S.
N.E.P.
CORP. OF ENGINEERS
MANATEE COUNTY
FLA. NATURAL AREAS INVENT.
U.S. FISH & WILD LIFE

[illegible]

COORDINATION OF SWIM, AQUATIC PRESERVE, AND LOCAL GOVERNMENT

COMPREHENSIVE PLANS

SUMMARY

The Florida State University's Homer Hoyt Center for Land Economics and Real Estate, in cooperation with the FAU/FIU Joint Center for Environmental and Urban Problems, proposes to evaluate the degree of consistency between the goals, objectives, policies, and implementation strategies contained in the SWIM, Aquatic Preserve, and Local Comprehensive Plans for portions of two areas, Tampa Bay and the Indian River Lagoon. Based on this analysis, conflicts among these plans will be identified and recommendations suggested for corrective actions, including those needed on a statewide basis. The Homer Hoyt Center requests funding for the 1991-92 Coastal Management Program grant period in order to conduct this study and prepare a report with recommendations.

A primary goal of Florida's Coastal Management Program is to foster the resolution of conflicting state policies concerning coastal land and water uses having a direct and significant impact on the coastal area. An example of this conflict is inadequate policy and technical coordination among SWIM plans, Aquatic Preserve Management Plans, the State Comprehensive Plan, and Local Comprehensive Plans. This can result in inconsistent plans, thus limiting the full potential of these important state programs to individually and collectively protect Florida's coastal resources, particularly when regulating land use within upland watersheds of vital coastal waters. Although intergovernmental coordination is a key element of success for these plans, it is often underemphasized in the planning process, or is inadequate by design. In the past, state agency plan review activities too often were uncoordinated or narrowly focused. Reasons include agency mission autonomy, inadequate staffing and funding, lack of communication, and inadequate or unfocused legislative direction.

Therefore, towards resolving conflicting state policy in the areas above, the Homer Hoyt Center, in cooperation with the FAU/FIU Joint Center, will collect and review all appropriate plans and supporting documents for the above areas, and will document the degree of consistency or inconsistency between the plans, particularly the degree to which Local Comprehensive Plans are able to address land use and its impact on coastal resources. The Homer Hoyt Center will then recommend actions for resolving any inconsistencies between plans, and offer suggestions for resolving any statutory, rule, or policy conflicts that have created or contributed to these inconsistencies. Finally, the Homer Hoyt Center will produce a report describing the degree of consistency between the goals, objectives, policies, and implementation strategies contained in the SWIM, Aquatic Preserve, and Local Comprehensive Plans for the above areas. The report will also identify conflicts between these plans, and recommended statewide or other corrective actions for resolving the inconsistencies and improving the overall process to avoid future problems.

Additionally, the Homer Hoyt Center, in cooperation with FSU's Florida Resources and Environmental Analysis Center (FREAC), proposes to examine plan consistency in regard to technical data and information transfer, the theory being that the availability of common data sets to different agencies will result in more consistent and rigorous plans. FSU will, as an in-kind contribution, analyze data requirements for the above three plans, create a common database and computerized data analysis techniques readily accessible to the different agencies responsible for the plans, and develop common data and other outputs for final production and presentation purposes. A pilot project area will be chosen following initial plan analysis and in consultation with the Department of Environmental Regulation.

The above consistency review and the technical data study are closely related to projects currently being conducted by the Homer Hoyt Center and FREAC, one to review and recommend corrective actions for further integrating SWIM and local comprehensive plans, the other to document a regional GIS and its

linkages to local and other government planning agencies. Research and analysis methodologies used in the Center's current projects are potentially applicable to the Coordination project described above.

DESCRIPTION

Background Information

This proposed study will focus initially on waterbodies of statewide significance targeted for protection and restoration under the state's Surface Water Improvement and Management Act (SWIM). Tampa Bay and the Indian River lagoon are two of six such areas in Florida that were top legislative priorities during the passage of the SWIM program in 1987. Additionally, both areas contain aquatic preserves for which the Governor and Cabinet have adopted management plans, which is not the case for all SWIM waterbodies. Likewise, not all of Florida's 42 aquatic preserves have adopted management plans, which is a prerequisite for this study.

Specifically, this comprehensive study will have a two-pronged integrated and coordinated multidisciplinary approach that will involve the following areas:

- 1) Portions of the watershed area for the Indian River Lagoon SWIM plan. This portion of the study will focus on the aquatic preserve management plan recently adopted within this area, Jensen Beach to Jupiter Inlet, and on local government plans within, adjacent to, or surrounding this general study area. DNR's aquatic preserve management plan for this area, adopted November 15, 1990, represents their statewide prototype for new and revised Aquatic Preserve Plans
- 2) Portions of the watershed area for the Tampa Bay SWIM plan. This portion of the study will focus on two aquatic preserve management plans that have been adopted within this area, Cockroach Bay and Terra Ceia, and on local government comprehensive plans within, adjacent to, or surrounding this general study area.

All aquatic preserve, SWIM, and local government comprehensive plans within these study areas all should be adopted by the time the study begins.

The Jensen Beach to Jupiter Inlet Aquatic Preserve, one of the three on the Indian River Lagoon, was destined as a wilderness preserve in 1973. This designation was intended to maintain the area in its primarily natural condition. The first phase of this plan was adopted in November 1990. Manatee Pocket, an area with its own SWIM plan, is located within the preserve. Both plans point to the need for intergovernmental coordination for implementation and note that point and nonpoint pollution and habitat loss are principal problems within the lagoon. The immediate study area also includes three counties (Palm Beach, Martin, and St. Lucie) and ten municipalities, all within the Treasure Coast Region. The comprehensive plans for the St. Lucie and Martin counties, and the cities of Jupiter Island and Port St. Lucie are not now in compliance, but settlement agreements are anticipated within the next few months, according to Treasure Coast Regional Planning Council staff.

Both the Terra Ceia and Cockroach Bay Aquatic Preserves fall within the Tampa Bay SWIM Plan watershed and planning area. These Preserves were selected because their Management Plans were the only ones within the Tampa Bay that have been adopted. Additionally, both fall within areas that are currently still undergoing development within their watersheds.

The first part of the overall study will assess the way in which these plans and their implementing mechanisms support or conflict with each other in addressing key problems identified in aquatic preserve and SWIM plans. Two different study areas -- a "wilderness preserve" in the Indian River Lagoon, the other an

urbanized area within Tampa Bay -- will be assessed. This will allow a full range of coastal issues to be explored by the inclusion of these two very different areas. Additionally, these areas have been brought into the federal National Estuarine Program, which recognizes particular estuaries for their biological productivity, recreational, and other values, and helps fund planning and other protection and preservation strategies and activities.

In regard to this assessment, SWIM plans for both Tampa Bay and Indian River Lagoon discuss the development of model local ordinances, particularly with regard to stormwater and other issues. (Land development regulations and other activities, such as acquisition programs, for the implementation of local plans must be in place within a year after submission to DCA.) For instance, habitat protection and the prevention of point and nonpoint pollution are issues that can -- and should -- be addressed through local comprehensive plans and land development regulations, as well as through regional and state regulatory and land acquisition programs. In addition, according to the Indian River Lagoon plan addressed in this study, the aquatic preserve program has attempted to guide; local governments in developing planning criteria and standards consistent with the aquatic preserve program. Among other things, this study will determine how fully local governments have embraced these standards, criteria and ordinances within the study areas.

TASKS

1. Map the study areas for comparison and analysis at common scales. In both areas (Tampa Bay and Indian River Lagoon), there is one SWIM plan each and several aquatic preserves. Aquatic preserves will provide a focal point for the study areas, which will be enlarged according to the identified drainage basins (or subbasins) from SWIM plans. Local governments falling within these basins will also be included within the study areas.
2. Conduct a review of law and rule to determine whether conflict exists among the enabling legislation and for each of the three planning efforts.
3. As part of FSU's in-kind contribution to examine plan consistency in regard to technical data and information transfer, the computer resources of FREAC's Local Government Assistance program will be available to both research teams to support the following sub-tasks:
 - 1) analyze common data requirements for the 3 different types of plans in digital format to satisfy these requirements and identify available datasets.
 - 2) create a common database that agencies working in all three of these planning areas can have access to as well as share their data and work products.
 - 3) develop computerized analysis techniques that support plan development and implementation.
 - 4) develop common data and information outputs for final production and presentation purposed (e.g. formats for digital data, customized maps, color slides, desktop computer presentations, etc.).

The latter task will be supported by the drafting and computer graphics services available from the FREAC Cartography Center. The pilot area for this project will be chosen as a result of the initial plan analysis task and in consultation with the Department of Environmental Regulation.

4. Review all relevant and other plans for the study area (SWIM plans, aquatic preserve management plans, local comprehensive plans) to determine key issues and critical resource areas, noting supporting and conflicting goals, objectives, policies, programs and approaches. All other relevant

- plans within the study area (e.g. Save Our Rivers, regional planning council policy plans) will be reviewed for the above issues and areas. To assure that this review is complete, any local plan amendments and all agency and local government comments must also be reviewed and assessed. Additionally, implementation efforts, including adopted local land development regulation practices, will be reviewed to determine how they address key issues and critical areas.
5. All major actors will be interviewed for their assessment of the extent and causes of plan inconsistencies or the lack of supporting policies among the three planning efforts. At minimum, interviews will be conducted with key program staff at DER, DCA, DNR, the water management districts, RPCs, and local governments within the study areas.
 6. A draft report will be prepared for review by the sponsoring agency and study participants. The report will discuss key issue and critical areas and how each plan addresses them, if at all. Inconsistencies will be assessed in depth, with the review including an evaluation, drawn from the legal review and interview results, of any recommended statewide or other procedural, programmatic, rule or statutory changes needed to address these points of conflict among plans.
 7. A final report will be prepared, using the review and comments drawn from step 5.

APPENDIX 8

Growth Management Data Network Coordinating Council

D R A F T

FLORIDA SPATIAL DATA DIRECTORY

USERS MANUAL

Bulletin Board Phone: (904)922-5928
GMDNCC Phone: (904)922-7193

August 30, 1991

Glossary of Terms

Florida Spatial Data Directory (FSDD)

The FSDD consists of 4 elements: Bulletin Board, Central Directory, Distributed Directory and Automated Survey

Bulletin Board

Computerized communications board that serves as a front end for the Central Directory

Central Directory

Central database accessed through the "Doors" option on the Bulletin Board

FSDD Distributed Program (Distributed Program)

Software package developed for a PC containing the Distributed Directory and the Automated Survey. Standards documentation developed by the Growth Management Data Network Coordinating Council along with a file compression program is also included.

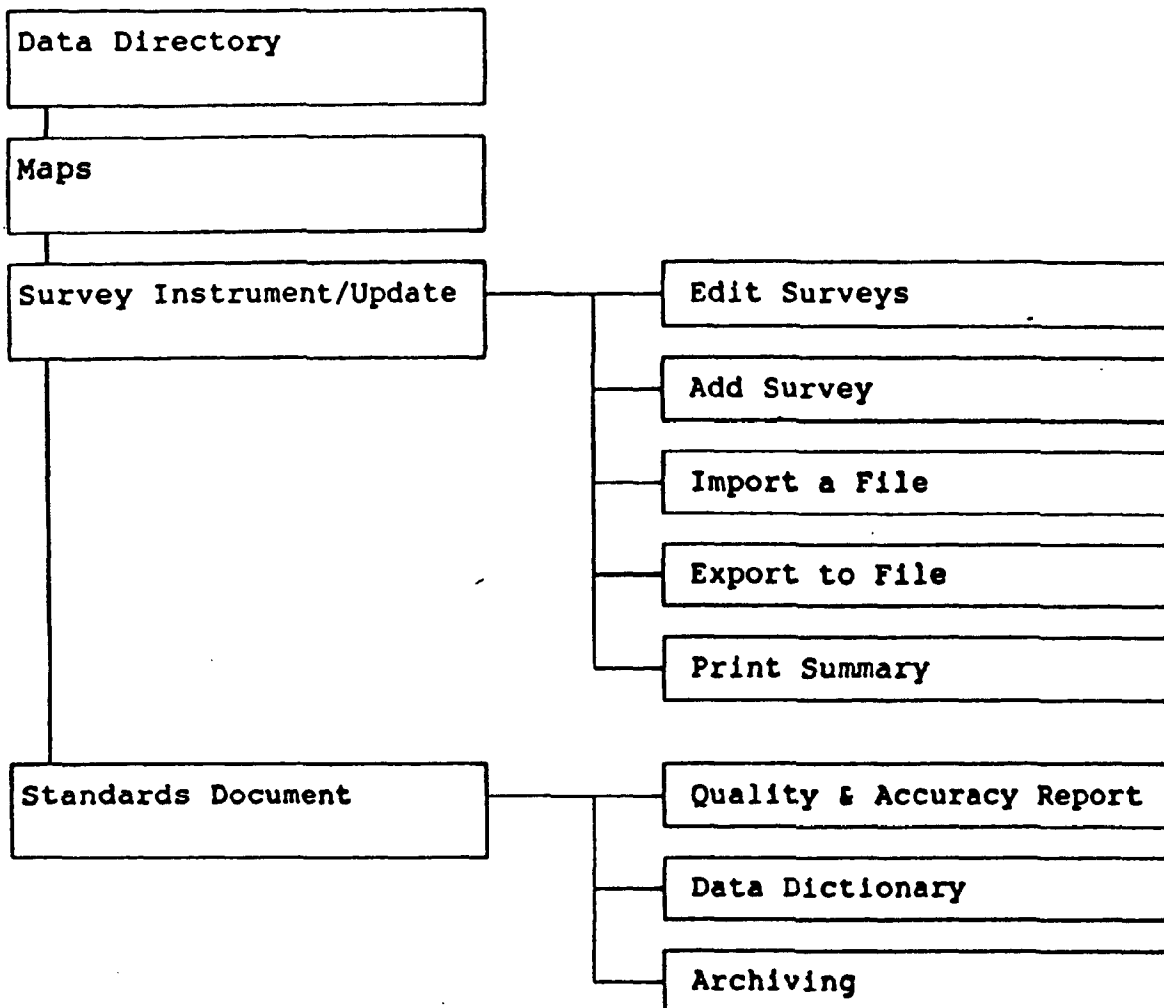
Distributed Directory

Representation of the Central Directory for a PC

Automated Survey

Survey used to update the Central Directory with new or revised information on an agency's or organization's data set(s)

**FLORIDA SPATIAL DATA DIRECTORY
DISTRIBUTED PROGRAM**



This manual will be divided as follows:

Chapter I - Bulletin Board

Chapter II - Central Directory

Chapter III - Distributed Directory

Chapter IV - Automated Survey

Chapter I

Bulletin Board

Introduction

The computerized Bulletin Board is a communications tools that allows one to:

- send and receive messages instantly,
- share computer files,
- advertise activities, and
- distribute public-domain and user-supported software.

It also provides a front end for the Central Directory of the Florida Spatial Data Directory (FSDD).

Instructions

Log on

1. Dial up the Bulletin Board. Phone: (904)922-5928
2. A welcome message will appear. The first two major prompts after connection are:

What is your FIRST Name?
What is your LAST Name?

3. For first-time callers, a message describing the purpose of the board appears and then prompts to create a record for the user:

What is your ORGANIZATION CITY and STATE?
<C>hange name/address, <D>isconnect, <R>egister?
Enter PASSWORD you'll use to log on again?
Re-enter PASSWORD for verification (Dots echo)?

4. If there are any messages addressed to the user, the numbers of the messages will appear.
5. Each user is allowed 60 minutes per session and 120 minutes per day. The Bulletin Board will display the remaining time before log off.

Main Menu

RBBS-PC M A I N M E N U			
----- MAIL -----	SYSTEM -----	UTILITIES -----	ELSEWHERE -
[E]nter a Message	[A]nswer Questions	[H]elp (or ?)	*[D]oors
[K]ill a Message	[B]ulletins	[J]oin Conferences	[F]iles
[P]ersonal Mail	[C]omment	[X]pert on/off	[G]oodbye
[R]ead Messages	[I]nitial Welcome		[Q]uit
[S]can Messages			[U]tilities
[T]opic of Msgs			[@]Library

* Florida Spatial Data Directory (Enter 'D')

Entering Messages

1. To enter a message, enter "E" at the main prompt, and the system displays:

To [A]ll, S)ysop, or name?

If you want to address the note to all users, press the enter key. If you have a specific user in mind, you must enter his/her name as it is listed in the system's user records.

2. The next prompt:

Make message p[U]blic, p(R)ivate, (P)assword
protected, (H)elp?

allows public and private messages to be written. There is a help option to provide further assistance. Remember, though, that the board's sysop can see all messages posted, even those that are private.

3. The Bulletin Board uses a line-based editor. Begin writing the message at the "l:" prompt. When the end of a line is reached, the system "wraps" to a new line. Messages are limited to 19 lines.
4. The editor subcommands can be called at any time during writing by pressing the enter key twice.
5. To save the message, select the S ("save") option from the subfunction prompt. The message is assigned a number and placed on the board.

Killing Messages

1. To kill a message, enter "K" at the main prompt, and the system displays:

```
Msg #(s) to Kill ([Enter] quits)?
```

2. Enter message number(s) to delete. If multiple, space in between message numbers.

Personal Mail

The system lists the numbers of any messages addressed to the current user. This is the same function that is automatically executed after log on when the system reports that it is "checking" for mail.

Reading Messages

1. To read a message, enter "R" at the main prompt, and the system displays something like:

```
Msg # 1-9 (H)elp [Q]uit)?
```

2. In this example, the system is saying the messages currently on the board range from numbers 1 to 9, and is asking for the number of the message to read.

Scanning Messages

Scanning messages is similar to reading them. If the "S" command is entered at the main prompt, the system displays a prompt identical to the read command with the same options. The only difference is the result--only the header material of each message is displayed instead of the entire text.

Topic of Messages

Topic of messages works the same as scanning, except that only the topic of each message is listed.

Bulletins

1. To read bulletins, enter "B" at the main prompt.
2. The system displays a menu of bulletin topics and prompts for the numbers of those to read.

Comments

1. To leave a private message to the sysop, enter "C" at the main prompt.
2. The Bulletin Board uses a line-based editor. Begin writing the message at the "1:" prompt. When the end of a line is reached, the system "wraps" to a new line. Messages are limited to 19 lines.
3. The editor subcommands can be called at any time during writing by pressing the enter key twice.
4. To save the message, select the S ("save") option from the subfunction prompt.

Initial Welcome

Allows you to view the "welcome" message from the sysop displayed when you first connect.

Join Conferences

The Bulletin Board provides "conferences", a group of messages devoted to a single topic, as another form of communication.

1. To join a conference, enter "J" at the main prompt.
2. The system displays a menu of available conferences and prompts for the number of the conference to join.

Doors

The "Doors" option allows other programs to be linked to the Bulletin Board. The Central Directory can be entered here.

1. To search the Central Directory, enter "D" at the main prompt.
2. The system displays a menu of available "doors" to the Central Directory. These "doors" correspond to the baud rate that the caller is operating at.

Enter "FSDD24" for 2400 baud Enter "FSDD12" for 1200 baud Enter "FSDD3" for 300 baud
--

3. If the wrong baud rate is selected, "garbage" will appear on the screen. Disconnect and call again.

Files

1. To reach the Files System, enter "F" at the main prompt.
2. The system displays the Files System Menu:

```
RBBS-PC  F I L E  S Y S T E M
-- TRANSFER ----- INFORMATION --- UTILITIES --- ELSEWHERE --
[D]ownload file  [L]ist files  [H]elp (or ?)  [G]oodbye
[P]ersonal dwnld [N]ew files  [X]pert on/off [Q]uit
[U]pload file    [S]earch files
```

Looking for Files

1. To find out how the sysop has organized the board's directories, enter "L" at the Files prompt. The system will display something like this:

F I L E D I R E C T O R I E S	
Directory	Contents
1	GMDNCC General Information
2	GMDNCC/SAC Meeting Summaries
3	Quality and Accuracy Report
4	Data Dictionary
5	Software
6	Issue Statements
7	Maps
8	Soils

2. To see the names of files in a particular directory, enter the number of the directory at the Files prompt.
3. For example, if "2" was entered, the system would display a list of files in the GMDNCC/SAC Meeting Summaries directory, with a description of each, size in bytes, and the date the file was posted in the system, like this:

2. GROWTH MANAGEMENT DATA NETWORK COORDINATING COUNCIL/
STAFF ADVISORY COMMITTEE
MEETING SUMMARIES

NAME.EXT	SIZE	DATE	DESCRIPTION
COUN0709.COM	16745	07-24-91	07/09/91 GMDNCC Meeting Summary
SAC0529.COM	8685	06-07-91	05/29/91 SAC Meeting Summary
SAC0424.COM	22679	05-29-91	04/24/91 SAC Meeting Summary

4. After all the names in the directory have been displayed, the prompt:

End list. R)elist, [Q]uit, or download what?

appears. The "Q" returns to Files menu and the "R" redisplayes the directory. Downloading is also accepted from this prompt by simply entering in the name of the file listed to retrieve.

5. Enter "S" at the Files prompt to search for files by keyword.
6. Enter "N" at the Files prompt to see the names and descriptions of files since a specific date. "N" prompts for a date, (i.e. for May 9, 1988, enter 050988). Just press return at prompt if you want the system to automatically display the files added since the date of the caller's last log on.

Downloading Files (Retrieve Files)

1. Enter "D" at the Files prompt.
2. Enter the exact name of the file as displayed.
3. If a preferred transfer protocol has not been specified (through Utilities), the system will list all available protocols and prompt for one to use.

YModem is recommended because it is a faster and more efficient transfer protocol. If you are having difficulties transferring data, utilize the XModem protocol which performs an error checking routine more frequently. (See the help for the utility command F)ile transfer for a discussion of different protocols.)

The following steps have been written utilizing ProComm telecommunication software.

4. When the host indicates that it is ready, press PgDn.
5. Select a transfer protocol for your PC. Select the SAME protocol as above.
6. The system will prompt for a file name to be stored on your PC under the directory that you are operating in unless a path is given. Please note that most files available for downloading will be self-extracting. If the file is renamed, keep the extension. If the extension is different, the file will not extract.
7. A window will open and report on the progress of the transfer and signal whether or not the data was successfully transferred.
8. Unpack the compressed file by typing in the name of the file without the extension. The compressed file will continue to exist after it has been unpacked and may be deleted.

Uploading a File (Transmit Files)

1. Enter "U" at the Files prompt.
2. The system will prompt for a name to be given to the file on the host system.
3. If a preferred transfer protocol has not been specified (through Utilities), the system will list all available protocols and prompt for one to use.

YModem is recommended because it is a faster and more efficient transfer protocol. If you are having difficulties transferring data, utilize the XModem protocol which performs an error checking routine more frequently. (See the help for the utility command F)ile transfer for a discussion of different protocols.)

The following steps have been written utilizing ProComm telecommunication software.

4. When the host indicates that it is ready, press PgUp.
5. Select a transfer protocol for your PC. Select the SAME protocol as above.
6. The system will prompt for the name of the file on your PC to transmit. Include a path if needed.

7. A window will open and report on the progress of the transfer and signal whether or not the data was successfully transferred.
8. The system will prompt for a description of the file that was uploaded. It is this description that the sysop will use in adding the file to the appropriate directory in the system.

Chapter II

Central Directory

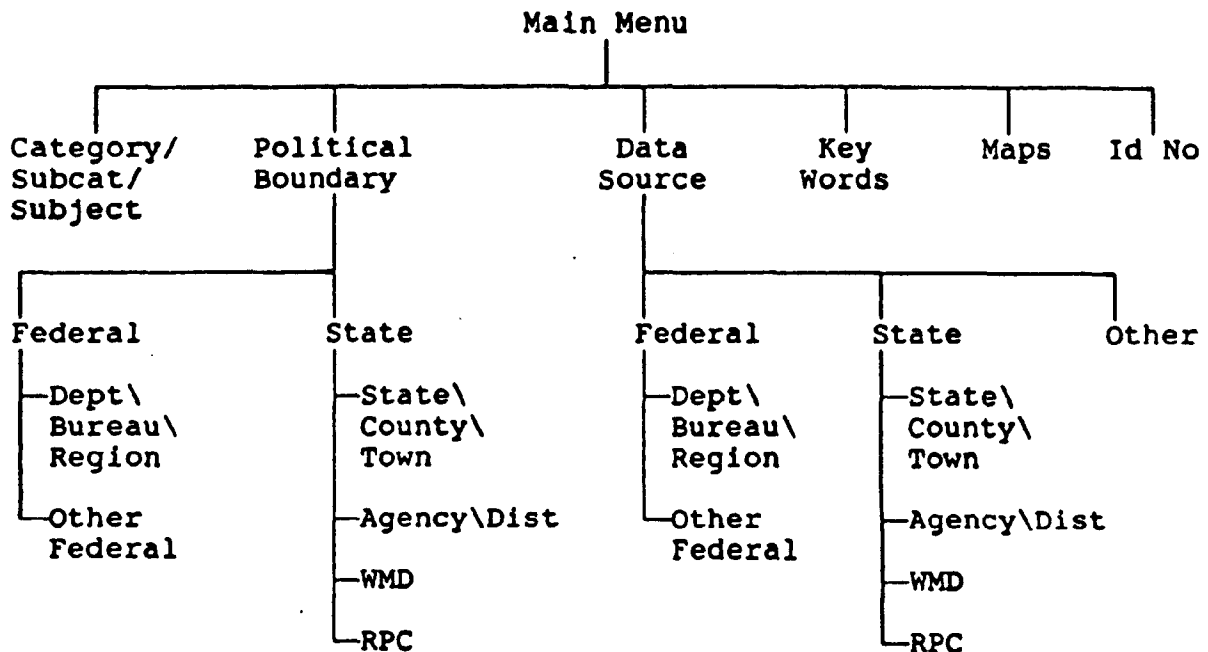
Introduction

The Central Directory is a hierarchal structure of menus that allow different types of searches into the database.

Instructions

1. To search the Central Directory, connect to the Bulletin Board and enter "D" at the main prompt.
Phone: (904)922-5928
2. The system displays a menu of available "doors" to the Central Directory. These "doors" correspond to the baud rate that the caller is operating at.

Enter "FSDD24" for 2400 baud
Enter "FSDD12" for 1200 baud
Enter "FSDD3" for 300 baud
3. If the wrong baud rate is selected, "garbage" will appear on the screen. Disconnect and call again.
4. The diagram below shows the menu structure of the Central Directory.



5. On-line assistance can be obtained by entering "H" or "?" to select the [H]elp Section.
6. All selections are made on the basis of greater than or equal to the value entered at the prompt.
7. The report produced in a search provides the user with the subjects, subcategories, categories, and ID numbers of the various data sets that fall within that search.
8. A descriptive summary about a particular set of data can be obtained through [I]d Number. The [I]d Number option is available in almost every Central Directory menu.
9. Enter the ID Number of the data set to view. From here, all of the following screens are available to view:

I	Index Screen1
S	Index Screen2
D	Data Descriptive Summary
H	Hardware and Software
C	Data Information Contact
T	Data Transfer Contact
M	Reference Maps
R	New Data Development Projects
O	Data Documentation

Enter the letter of the screen to view and press enter.

Chapter III

Distributed Directory

Introduction

The Distributed Directory is a main function of the FSDD Distributed Program (Distributed Program). The purpose of the Distributed Directory is to provide a representation of the Central Directory that can be stored on a PC.

Instructions

1. Go to the directory where the Distributed Program is located.
2. Enter "FSDD" to execute.
3. Select "Data Directory" and press enter.
4. A screen will appear with data set entries listed by ID NUMBER and CATEGORY. Use arrow keys to go "left and right" as well as "up and down" through the entries.
5. The data set entries are sorted by ID NUMBER. Sort options are provided to more effectively search for a particular data set. Entries can be sorted by ID NUMBER, CATEGORY, SUBCATEGORY or SUBJECT. Press "F1" to select sort options.
6. Place cursor on entry to view and press "F2". All FSDD screens for the data set can be viewed by pressing the "PgDown" and "PgUp" keys. Press "Esc" to exit.
7. Press "Esc" to exit "Data Directory".

Chapter IV

Automated Survey

Introduction

The Automated Survey is a main function of the FSDD Distributed Program (Distributed Program). The survey is used to update the Central Directory with new or revised information on an agency's or organization's data set(s). An entry is always considered new if it has not been previously assigned an ID Number by the Central Directory.

Instructions

1. Go to the directory where the Distributed Program is located.
2. Enter "FSDD" to execute.
3. Select "Survey Instrument/Update" and press enter.
4. The Survey Menu will appear with the following options:

Edit Surveys
Add Survey
Import a File
Export to File
Print Summary

5. An explanation of each option is provided below.

Edit Surveys

1. Select "Edit Surveys" and press enter.
2. A screen will appear with data set entries listed by ID NUMBER and CATEGORY. Use arrow keys to go "left and right" as well as "up and down" through the entries.
3. The data sets are sorted by ID NUMBER. Sort options are provided to more effectively search for a particular data set. Entries can be sorted by ID NUMBER, CATEGORY, SUBCATEGORY or SUBJECT. Press "F5" to select sort options.
4. Press "F1" for the help screen for browsing the surveys. Instructions on how to make modifications to a field while browsing are provided in this help screen. Press "Esc" to exit.

5. Press "F2" to add an entry to the survey. Instructions for adding an entry are provided in the next section, Add Survey.
6. Place cursor on entry to edit and press "F3". A window will appear to question if the entry is new or an update. The explanation for this prompt is provided in the next section, Add Survey. All FSDD screens for the data set can be edited by pressing the "PgDown" and "PgUp" keys to switch screens. Press "Esc" to save edits and return.
7. Place cursor on entry to delete and press "F4". Confirmation of deletion is required.
8. Press "Esc" to exit.

Add Survey

1. Select "Add Survey" and press enter.
2. A window will appear to question if the entry is new or an update. If the entry is new, the ID NUMBER is automatically set to 0. The entry will be assigned an ID NUMBER by the Central Directory when it is initially stored. If the entry is an update, the ID NUMBER that the Central Directory has previously assigned should be used.
3. Fill in the survey screens, using the "PgDown" and "PgUp" keys to switch screens.
4. Press "Esc" to save entry and exit.

NOTE: Example surveys are provided in Appendix 1.

Import a File

This option allows an agency to distribute copies of the Distributed Program to different divisions. Each division can fill out a survey and then provide the appropriate file to a central contact. The central contact can then combine (import) the different division files into one agency-wide survey to submit to the Central Directory.

The procedures are as such:

1. The central contact of an agency provides copies of the Distributed Program to each division.
2. Each division adds data entries to the survey.

3. The file "fsdd.dbf" will contain the data entries that have been added. Each division will need to rename this file, AFTER ALL ENTRIES HAVE BEEN MADE, and provide a copy of this file to the central contact.

The DOS command to rename a file:

```
RENAME <original filename> <new filename>
```

*** CENTRAL CONTACT DOES NOT RENAME THE FSDD.DBF FILE ***

4. The central contact can combine (import) the different division files with the "Import a File" option. Select "Import a File" and press enter.
5. A screen will appear that allows five file entries at a time. If there are more than five files to import, simply repeat the process.
6. Enter in each file name provided by the divisions. THERE CANNOT BE ANY DUPLICATE FILE NAMES. Press enter. If there are less than five files, press enter until bottom of screen is reached.
7. This procedure adds all of the data set entries in each of these division files to the original "fsdd.dbf" file on the central contact's copy of the Distributed Program.

Export to File

When the survey of the central contact is ready to be submitted to the Central Directory, select this option.

1. Select "Export to File" and press enter.
2. Fill in agency/contact information.
3. Press return at the file name field to read all file name options. These are the only file names that will be accepted. If they do not apply, choose "OTHER.TXT".
3. Press enter.
4. This extracted file now resides on the same directory as the Distributed Program. If "OTHER.TXT" was chosen, rename the file before submitting to the Central Directory.

The DOS command to rename a file:

```
RENAME <original filename> <new filename>
```

Print Summary

This option is provided to print a summary of all data set entries currently on the survey.

APPENDIX 1

EXAMPLE 1

Screen 1 of 9

Florida Spatial Data Directory
Index Screen1

Date of Input 10/17/90 ID NO < 0>
[Cat< TRANSPORTATION Subcat TRAFFIC >
Subject< ANALYSIS >] See Maps (Y/N)N Work in Progress (Y/N)N

=====
Area of Coverage by Political Boundary :

Federal

[Dept < _____ Bureau _____ Region/Dist _____>]
Other Boundaries < _____>

State

[State <FL County PASCO City/Town NEW PORT RICHEY>]
[Agency <____> Region/District <____>] Water Management District
<SW> Regional Planning Council <____>

EXAMPLE 1

Florida Spatial Data Directory Screen 2 of 9
Index Screen2

Update 10/17/90 Subject ANALYSIS ID NO 0

=====

Source of Data:

Federal

[Dept <____ Bureau ____ Region/Dist ____>]

Other Federal Classifications <____>

State

[State <FL County PASCO City/Town ____>]

[Agency <____> Region/District <____>] Water Management District
<SW>

Regional Planning Council <____>

Other: <____>

=====

Key Words:<ZONES >

EXAMPLE 1

Data Descriptive Summary

Screen 3 of 9

Update 10/17/90 Subject ANALYSIS

ID NO 0

=====

Raster Data (Y/N) N	Vector Data (Y/N) Y
Resolution	Scale 1:24,000 Datum 1927
Date Range of Source Material 10/17/90 to 10/17/90	
Comment: Based on existing parcel lines	

Creator of derived data: Pasco Co. Survey Division, GIS Section
Update schedule: As required
Positional Accuracy: +/- 40'
File Size:
Output Format: Very flexible
Output Medium: Very flexible
Geographic Coverage:
Associated Data Directory Maps (Y/N) N
Descriptive Text: Zones are mapped based on census tracts. This layer will be snapped to the parcel layer when it is completed.

EXAMPLE 1

Hardware/Software

Screen 4 of 9

Update 10/17/90 Subject ANALYSIS

ID NO 0

=====

Hardware:

PRIME 2755

Software:

Operating System: PRIMOS - UNIX PLANNED FOR JANUARY '91
Database: _____

GIS/CADD/Mapping: ARC/INFO Version 5.01

Other: ADR

Does the system have dial up capability (Y/N) N
Phone (____) ____-____

Explanatory Notes: _____

EXAMPLE 1

Contact Person	Screen 5 of 9
Update 10/17/90 Subject ANALYSIS	ID NO 0

=====

Data Information Contact

Agency/Organization Pasco County
Unit Geodetic Mapping
Contact Nellie Robinson/Steve Totten
Title GIS Administrator/Computer Drafting Tech.
Address Pasco County/Development Services Branch
7432 Little Road
City New Port Richey State FL
Zip 34654-0000

Phone: Suncom 596-1290
(813) 847-8140

EXAMPLE 1

Contact Person

Screen 6 of 9

Update 10/17/90 Subject ANALYSIS

ID NO 0

=====

Data Transfer Contact

Agency/Organization Pasco County

Unit Geodetic Mapping

Contact Nellie Robinson/Steve Totten

Title GIS Administrator/Computer Drafting Tech.

Address Pasco County/Development Services Branch
7432 Little Road

City New Port Richey State FL

Zip 34654-0000

Phone: Suncom 596-1290
(813) 847-8140

EXAMPLE 1

Screen 7 of 9

Reference Maps

Update 10/17/90 Subject ANALYSIS

ID No 0

=====

Map Title _____

Name of file on bulletin board for downloading _____

Description of Map(s):

EXAMPLE 1

Screen 8 of 9

New Data Development Projects

Update 10/17/90 Subject ANALYSIS

ID No 0

=====

Description:

EXAMPLE 1

Screen 9 of 9

Data Documentation

Update 10/17/90 Subject ANALYSIS ID No 0

=====

Data Dictionary (Y/N) N

Name of file on bulletin board for downloading

Quality & Accuracy Report (Y/N) N

Name of file on bulletin board for downloading

EXAMPLE 2

Screen 1 of 9

Florida Spatial Data Directory
Index Screen1

Date of Input 10/11/90 ID NO < 0>
[Cat< DEMOGRAPHICS/ECONOMICS Subcat DEMOGRAPHICS >
Subject< POPULATION >] See Maps (Y/N)N Work in Progress (Y/N)N

=====
Area of Coverage by Political Boundary :

Federal

[Dept < _____ Bureau _____ Region/Dist _____>]
Other Boundaries < _____>

State

[State <FL County _____ City/Town _____>]
[Agency < _____> Region/District < _____>] Water Management District
< _____> Regional Planning Council < _____>

EXAMPLE 2

Florida Spatial Data Directory Screen 2 of 9
Index Screen2

Update 10/11/90 Subject POPULATION ID NO 0

=====

Source of Data:

Federal

[Dept <USDOC Bureau BEA Region/Dist ____>]
Other Federal Classifications <_____>

State

[State <__ County _____ City/Town _____>]
[Agency <__> Region/District <__>] Water Management District
<__>
Regional Planning Council <__>

Other: <_____>

=====

-----PEOPLE

>

EXAMPLE 2

Data Descriptive Summary

Screen 3 of 9

Update 10/11/90 Subject POPULATION

ID NO 0

=====

Raster Data (Y/N) N	Vector Data (Y/N) N
Resolution _____	Scale _____ Datum _____
Date Range of Source Material 01/01/59 to 12/31/89	
Comment: _____	

Creator of derived data: US Department of Commerce

Update schedule: Yearly

Positional Accuracy: County level

File Size: Approximately 110K Bytes

Output Format: ASCII

Output Medium: 5 1/4 or 3 1/2 Floppy

Geographic Coverage: County

Associated Data Directory Maps (Y/N) N

Descriptive Text: Population of Florida Counties. Table CA5.

EXAMPLE 2

Hardware/Software

Screen 4 of 9

Update 10/11/90 Subject POPULATION

ID NO 0

=====

Hardware:

BANYAN CNS Local Area Network

Software:

Operating System: VINES

Database: DataFlex

GIS/CADD/Mapping: _____

Other: _____

Does the system have dial up capability (Y/N) Y

Phone (904) 488-4255

Explanatory Notes: Please contact FDC Computer Services for
dial-up details

EXAMPLE 2

Contact Person

Screen 5 of 9

Update 10/11/90 Subject POPULATION

ID NO 0

=====

Data Information Contact

Agency/Organization Florida Dept. of Commerce

Unit Computer Services Office

Contact Gail Cruce

Title Systems Project Administrator

Address 107 West Gaines Street

Collins Building, Room 424

City Tallahassee

State FL

Zip 32399-_____

Phone: Suncom 478-4255

(904) 488-4255

EXAMPLE 2

Contact Person

Screen 6 of 9

Update 10/11/90 Subject POPULATION

ID NO 0

=====

Data Transfer Contact

Agency/Organization Florida Dept. of Commerce

Unit Computer Services Office

Contact Gail Cruce

Title Systems Project Administrator

Address 107 West Gaines Street

Collins Building, Room 424

City Tallahassee State FL

Zip 32399-_____

Phone: Suncom 478-4255

(904) 488-4255

EXAMPLE 2

Screen 7 of 9

Reference Maps

Update 10/11/90 Subject POPULATION ID No 0

=====

Map Title _____

Name of file on bulletin board for downloading _____

Description of Map(s):

EXAMPLE 2

Screen 8 of 9

New Data Development Projects

Update 10/11/90 Subject POPULATION

ID No 0

=====

Description:

EXAMPLE 2

Screen 9 of 9

Data Documentation

Update 10/11/90 Subject POPULATION ID No 0

=====

Data Dictionary (Y/N) N

Name of file on bulletin board for downloading

Quality & Accuracy Report (Y/N) N

Name of file on bulletin board for downloading



INDEX - DATA DESCRIPTIVE SUMMARIES

Subject: Aids to Navigation
Agency: FDNR/FMRI

Descriptive Summary: Data has not been proofread. Extraneous data needs editing. We will be targeting Tampa Bay and Biscayne Bay. Aids to navigation include channel markers, buoys, fixed landmarks, fixed structures in water, etc.

Subject: Air Monitoring Ambient Data
Agency: Air Program, EPC of Hillsborough County

Descriptive Summary: This data has the locations of air monitor stations in Hillsborough County and the ambient levels of the criteria pollutants. It also identifies the equipment and type of analysis used. 33 stations are in the county (some 24 hour, some manual every 6 days). Continuous sampling. Manuals include total suspended particulate matter.

Subject: Artificial Reefs
Agency: FDNR/Florida Marine Research Institute

Descriptive Summary: This database is a digital file of the "Atlas of Artificial Reefs in Florida," produced by Florida SEAGRANT. Some of the attributes are: depth of water, LORAN coordinates, composition of reef.

Subject: Bathymetry
Agency: FDNR/Florida Marine Research Institute

Descriptive Summary: Bathymetry data includes delineation of the shoreline, 3 ft. 6 ft. 18 ft. 30 ft. & 60 ft. bathymetric contour lines. In addition, spoil areas and channels are included.

Subject: Benthic Sampling Location Database
Agency: Tampa Bay National Estuary Program

Descriptive Summary: Computerized summary of sampling locations for 22 benthic studies. Contains location (lat/long), range of dates and sampling interval, and information on what parameters were recorded at each site. Described in Technical Publication #06-92 of the TBNEP.

Subject: Boat Ramps
Agency: FDNR/Florida Marine Research Institute

Descriptive Summary: Positional accuracy on some ramps is + or - 1000 meters. In some cases, positional accuracy is "right on." Field verification is needed.

Subject: Comprehensive Plan Map for Hillsborough County
Agency: Hillsborough County City-County Planning Commission
Descriptive Summary: Infrastructure Planning Section digitized the original map from 11 area Plan maps generated by the Planning Commission
* -- Genamap command description accompanying this summary is currently filed in office of David Stage, EOG, Tallahassee, FL 904/488-7793.

Subject: Comprehensive Plan Map for Plant City
Agency: Hillsborough County City-County Planning Commission

Descriptive Summary: The Planning Commission digitized the original map from the official Plan Map generated by the Graphics Section of the Planning Commission with the addition of plan amendments color coded.

* -- These descriptions are currently on file with David Stage, EOG, in Tallahassee. 904/488-7793.

Subject: Comprehensive Plan Map for Tampa
Agency: Hillsborough County City-County Planning Commission

Descriptive Summary: The Planning Commission digitized the original map from the official Plan map generated by the Graphics Section of the Planning Commission (excluded N. annexed area)

* -- Command descriptions could not be entered here; they are on file with David Stage, EOG, Tallahassee, FL. 904/488-7793.

Subject: Comprehensive Plan Map for Temple Terrace
Agency: Hillsborough County City-County Planning Commission

Descriptive Summary: The Planning Commission digitized the original map from the official Plan map generated by the Graphics Section of the Planning Commission. The attached command descriptions could not be entered here; they are on file with David Stage, EOG, Tallahassee, FL. 904/488-7793.

Subject: Detailed Soil
Agency: FNDR/Florida Marine Research Institute

Descriptive Summary: Detailed soil data -- certified by SCS. Hillsborough and Manatee Counties combine for ^100 classifications, fully attributed in ARC/INFO.

Subject: Domestic Wastewater Residual/Sludge App. Sites
Agency: Environmental Protection Commission, Hillsborough Co.

Descriptive Summary: Besides position of all sludge application sites, EPC's map location number allows cross-reference to a database which includes: folio #, owner address, approval date, expiration date, STR, acres, vegetative cover, generators and operating status.

Subject: Drainage Basin Boundaries of SWFWMD
Agency: SWFWMD

Descriptive Summary:

Subject: Emergency Preparedness/Planning
Agency: Air Program, Hillsborough County EPC

Descriptive Summary: Data to be used to Emergency Preparedness Planning and for land use planning/rezoning activities. There is the ALOHA section of CAMEO which is a dispersion model for risk assessment and vulnerability analysis of populations. Census data is essential to this program.

Subject: Federal Emergency Management Agency Flood Insurance
Agency: SWFWMD

Descriptive Summary:

Subject: Five Foot contour data from USGS quads
Agency: SWFWMD

Descriptive Summary: Contours scanned from USGS stable base separates and converted to ARC/INFO format

Subject: Florida Shoreline
Agency: FDNR/Florida Marine Research Institute

Descriptive Summary:

Subject: FNAI Biological Conservation Data Base
Agency: Florida Natural Areas Inventory

Descriptive Summary: Data includes fields for county, latitude, longitude, township and range, section, watershed, and a textual directions field. There are three levels to the positional accuracy.

Subject: Habitat Cover and Wildlife Occurrence Records
Agency: Florida Game and Fresh Water Fish Commission

Descriptive Summary: Habitat Cover Maps and wildlife occurrence for the State of Florida

Subject: Habitat Mapping Including Uplands and Wetlands
Agency: Lewis Environmental Services, Inc.

Descriptive Summary: To County Line Road. Various map, incl. seagrass aerial cover trend maps for 1938, 1957 and 1991. 1990 FLUCS coded maps of the same general area. * = scale is 1:24000 to 1:100,000

Subject: Hillsborough County Commission District Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Map displays existing District boundaries for four single-member commission seats. Boundaries defined in 1991 redistricting based on 1990 Census data.

Subject: Hillsborough County Comprehensive Phosphate Mine Map
Agency: Hillsborough County Engineering Service

Descriptive Summary: Comprehensive Phosphate Mine Map displays areas affected by mining activity. At present, these include three basic sites: IMCC Big Four, Kingsford Mines and Mobil Chemical's Nichols Mine. Map shows areas based on various reclamation and mining permit categories.

Subject: Hillsborough County Contour Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Contour map locates 5-foot contour lines, as originally mapped by SWFWMD. Map was imported for NPDES purposed. Will be eventually replaced by 1-foot or 2-foot contour.

Subject: Hillsborough County Existing Land Use Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Existing Land Use Map displays existing land use category for each land parcel in the unincorporated area. Map is generated based on data provided by linkage to the County Property Appraiser's database (linking field = folio number). Some aggregation of categories occurs.

Subject: Hillsborough County Impervious Areas Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Impervious Map provides detailed footprint information for non-residential sites contributing to runoff. Map is used to support Stormwater Utility Fee calculations.

Subject: Hillsborough County NPDES Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: NPDES map provides data relative to factors used in determining NPDES compliance and permitting. Map includes stormwater structure, outfall basin boundaries, NPDES industry sites, landfills, stormwater flows, riverine basin boundaries and population distributions.

Subject: Hillsborough County Primary Care Facilities Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: (1) Primary Care facilities map identifies service areas for human services sites; (2) Extended hours layer identifies sites in (1) that offer extended hours of service; (3) Hospital service areas identifies four primary service hospitals and the areas that they cover.

Subject: Hillsborough County Significant Wildlife Habitat Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Significant Wildlife Habitat Map displays areas identified for habitat protection by the BOCC. These areas are plotted onto base and parcel layers. Map will be used by county staff in the land development regulation process.

Subject: Hillsborough County Water Quality Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Water Quality Map displays water quality levels for Hillsborough County water bodies -- streams, rivers, lakes and Tampa Bay. Categories range from poor to good. Data source: Hillsborough County Stormwater Design Services. Data gathered from SWFWMD and WCRWSA monitoring stations.

Subject: Hillsborough County Zoning Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Zoning map provides coverage for all categories of zoning assigned in the unincorporated area. This project was done to support Comprehensive Plan zoning conformance; when finalized, maps are certified as official by BOCC.

Subject: Hillsborough County Census Tract Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Map displays census area boundaries

Subject: Hillsborough County Base Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Base map represents foundation for all County GIS activities. Tied to Florida State Plane Coordinate System, it integrates parcel-based activities with all other geographic analyses projects.

Subject: Hillsborough County Parcel Map
Agency: Hillsborough County Engineering Services

Descriptive Summary: Parcel map represents all individual land ownership parcels in the unincorporated area, Plant City and Temple Terrace. It provides the basis for relating other geographic data to ownership issues and for monitoring development related activities.

Subject: Industrial Wastewater Treatment Facility (IWTF)
Agency: EPC of Hillsborough County

Descriptive Summary: Besides position of all IWTFs, EPC database includes facility name, industrial type, permit #, expiration date, lat/long street location, method of effluent disposal and plant permitted capacity

Subject: Land Cover 1950 and Land Cover 1982
Agency: FDNR/Florida Marine Research Institute

Descriptive Summary: These coverages were digitized from 1:24,000 scale aerial photography. There are over 20 classes that can be simplified to 9 categories. Includes all of Pinellas county, with partials of Pasco, Hillsborough and Manatee counties.

Subject: Land Use and Biological Coverage
Agency: U.S. Fish and Wildlife Service

Descriptive Summary: Raster 1991 update, Eagle nest locations, woodstock and wading colonies, breeding bird survey, nesting and feeding areas, 50 priority species included

Subject: Land Use/Cover Based on Dot Scheme Level II
Agency: SWFWMD

Descriptive Summary: Photo interpretation of 1:24,000 scale color IR photo. Mapping resolution is one acre for wetlands and five acres for all other classes.

Subject: Major Air Pollutions Sources
Agency: Air Monitoring, Air Program

Descriptive Summary: Has the HTMs for the permitted air pollution sources in Hillsborough County. The data is in a state system that is GIS-compatible. Their systems is called Air Pollution Information System (APIS).

Subject: Meteorological Data
Agency: National Weather Service

Descriptive Summary: Data consists of daily max and min air temperature and their corresponding departure from normal. Daily rainfall also available. Selected stations also have daily evaporation 4" soil temps, solar radiation and hours of leaf wetness. Summaries of these parameters are available in various formats.

Subject: Plant Communities
Agency: FDNR/FMRI

Descriptive Summary: Contains 22 classifications as interpreted from Landsat TM data. Classes may be combined into four basic categories for simplicity.

Subject: Radon
Agency: Air Program, EPC, Hillsborough County

Descriptive Summary: This information will provide locations of radon levels in Hillsborough County

Subject: Roads
Agency: FDNR/Florida Marine Research Institute

Descriptive Summary: Needs updating

Subject: Sanitary Landfills (Old and Active)
Agency: EPC of Hillsborough County, Waste Mgt. Division

Descriptive Summary: Five old sites are known in the planning area

Subject: SEAGRASS Mapping of Tampa Bay
Agency: SWFWMD, SEAGRASS 88

Descriptive Summary: Photo interpretation of 1:24,000 scale color photo. Mapping resolution is one acre.

Subject: SEAGRASS Mapping of Tampa Bay
Agency: SWFWMD

Descriptive Summary: Photo interpretation of 1:24,000 scale color photo. Mapping resolution is one acre.

Subject: Seagrass 1990 and Seagrass 1988
Agency: FDNR/FMRI

Descriptive Summary: 1990 seagrass data and 1988 seagrass data. Please refer to Southwest Florida Water Management District as data creators.

Subject: Section, Township, Ranges from 1:24000 USGS map
Agency: SWFWMD

Descriptive Summary:

Subject: Small Quantity Generators (CESQGS)
Agency: EPC Hills. Co., Waste Mgt. Division

Descriptive Summary: This is a combination of verified and unverified list of around 3000 sites

Subject: Stationary Storage Tank Facilities
Agency: EPC, Hills. Co. Waste Mgt. Div., Storage Tank Program

Descriptive Summary: Approximately 51 sites in study area

Subject: Storm Water Management Permit Boundaries
Agency: SWFWMD, SWMPOLY

Descriptive Summary: ARC/INFO files contains points ID to relate to external database

Subject: Storm Water Management Permit Points
Agency: SWFWMD, SWMPNT

Descriptive Summary: ARC/INFO files contains point ID to relate to external database

Subject: SWFWMD - SWIM Bibliographic Database (BDB)
Agency: Tampa Bay National Estuary Program

Descriptive Summary: Goal was to identify, locate, briefly describe and evaluate the quality of data pertinent to Tampa Bay. Contains 1,356 entries for books, reports and journal articles. In addition, each entry includes a list of parameters collected, sampling methods used, etc.

Subject: Two foot contours and spot elevation
Agency: SWFWMD

Descriptive Summary: Only small portions of the district has two foot contour digital files

Subject: USDA/SCS Detailed soils maps/county soil atlas
Agency: SWFWMD

Descriptive Summary: Current coverages include: Hernando, Pasco, Sarasota, Hardee, Desoto, Citrus, Polk, Hillsborough

Subject: Valid EPA Wetland Delineations, Total # Surveys
Agency: EPC Hillsborough County

Descriptive Summary: These surveys represent a separate legal layer where each has signed off wetlands delineation under Ch. 1-11 of FPC. There are other sources for "estimates" of where

wetlands exist in study. A separate listing of each survey is attached, giving project name, scale, datum, specific date range and land surveyor name.

Subject: Water Quality Data
Agency: EPC of Hillsborough County, Environmental Monitoring Section

Descriptive Summary: Data collected at 3 sites (stations 112, 113 136). Each site has as many as 53 different parameters: station #, date, depth, air & water temp., color, secchi, turbidity, residue, conductivity, salinity, dissolved oxygen, pH, biochemical oxygen demand, chlorophyll, much more. For more info, contact Tom Cardinale.

Subject: Water Quality Monitoring Database
Agency: Tampa Bay Regional Planning Council

Descriptive Summary: Sampling Methodology and Location

Subject: Water Resources Database
Agency: U.S.G.S.

Descriptive Summary: Laboratory and field water quality data, intermittant water level, intermittant discharge data are stored in one database. Daily (continuous) measurements of water level, discharge, velocity and selected water quality data are stored in another database. Meteorological data may exist in both databases.

DATA DESCRIPTIVE SUMMARY

Subject: Aids to Navigation

Nondigital____ Raster Data____ Vector Data____ Point Data X
Resolution: Scale: varied Datum: 27
Date Range of Source Material: 1980s to

Comment: NOAA charts (originally ASCII text file)

Source/Creator of data: NOAA
Update schedule: unknown
Positional Accuracy: +/- varies
File Size: 1 MB
Output Format: ARC/INFO export file
Output Medium: digital
Geographic Coverage: Florida

Descriptive Summary: Data has not been proofread. Extraneous data needs editing. We will be targeting Tampa Bay and Biscayne Bay. Aids to navigation include channel markers, buoys, fixed landmarks, fixed structures in water, etc.

Contact: Gail MacAulay
Agency: FDNR/FMRI
Phone: 813-896-8626

DATA DESCRIPTIVE SUMMARY

Subject: Air Monitoring Ambient Data

Nondigital____ Raster Data X Vector Data____ Point Data____
Resolution: USGS quads Scale: 1:24,000 Datum:
Date Range of Source Material: 1974 to present

Comment: verifying data formats over the early years, 1974-81

Source/Creator of data: Environmental Protection Commission

Update schedule: quarterly
Positional Accuracy: +/-
File Size: Annual data set 6 MB
Output Format: PRN files
Output Medium: 1.44 MB diskette/Mainstream tape
Geographic Coverage: Hillsborough County

Descriptive Summary: This data has the locations of air monitor stations in Hillsborough County and the ambient levels of the criteria pollutants. It also identifies the equipment and type of analysis used. 33 stations are in the county (some 24 hour, some manual every 6 days). Continuous sampling. Manuals include total suspended particulate matter.

Contact: Tom Tamanini
Agency: Air Program, Hillsborough County EPC
Phone: 813-272-5530

DATA DESCRIPTIVE SUMMARY

Subject: Artificial Reefs

Nondigital____ Raster Data____ Vector Data____ Point Data X____

Resolution: Scale: variable Datum: 27

Date Range of Source Material: to

Comment: from "Atlas of Artificial Reefs in Florida

Source/Creator of data: Florida sea gran (Don Pytas)

Update schedule: unknown

Positional Accuracy: +/-

File Size: 1 MB

Output Format: ARC/INFO export file

Output Medium: digital

Geographic Coverage: Florida

Descriptive Summary: This database is a digital file of the "Atlas of Artificial Reefs in Florida," produced by Florida SEAGRANT. Some of the attributes are: depth of water, LORAN coordinates, composition of reef.

Contact: Gail MacAulay

Agency: FDNR/Florida Marine Research Institute

Phone: 813-896-8626

DATA DESCRIPTIVE SUMMARY

Subject: Bathymetry

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: *

Datum: 27

Date Range of Source Material: 1980 to 1991

Comment: * - scale is 1:40,000 or smaller

Digitized from NOAA nautical charts at largest avail. scale

Source/Creator of data: NOAA charts as digitized by GEONEX for FDNR/FMRI

Update schedule:

Positional Accuracy: +/- Varies, depending upon scale of source material

File Size: export coverage 28 MB

Output Format: ARC/INFO export coverage

Output Medium: digital

Geographic Coverage: Florida (currently divided into eleven segments)

Descriptive Summary: Bathymetry data includes delineation of the shoreline, 3 ft. 6 ft. 18 ft. 30 ft. & 60 ft. bathymetric contour lines.

In addition, spoil areas and channels are included.

Contact: Gail MacAulay

Agency: FNDR/Florida Marine Research Institute

Phone: 813-896-8626

DATA DESCRIPTIVE SUMMARY

Subject: Benthic Sampling Location Database

Nondigital____ Raster Data____ Vector Data____ Point Data____

Resolution: Scale: Datum:

Date Range of Source Material: 1981 to 1984

Comment: Not comprehensive; includes 22 benthic studies

Source/Creator of data: Varies; compiled by Coastal Environmental Sources

Update schedule:

Positional Accuracy: +/- one minute lat/long (sometimes + or - 1 second)

File Size: 100 kilobytes

Output Format: dBASE III Plus

Output Medium: 740 K floppy disk

Geographic Coverage: Tampa Bay and tributaries

Descriptive Summary: Computerized summary of sampling locations for 22 benthic studies. Contains location (lat/long), range of dates and sampling interval, and information on what parameters were recorded at each site. Described in Technical Publication #06-92 of the TBNEP.

Contact: Holly Greening

Agency: Tampa Bay National Estuary Program

Phone: 813-893-2765

DATA DESCRIPTIVE SUMMARY

Subject: Boat Ramps

Nondigital____ Raster Data____ Vector Data____ Point Data X

Resolution: Scale: Datum: 27

Date Range of Source Material: to 1987

Comment: Data has not been ground touched or verified

Source/Creator of data:

Update schedule:

Positional Accuracy: +/- 1,000 meters

File Size:

Output Format: ARC/INFO export coverage

Output Medium: digital

Geographic Coverage: Counties: Hillsborough, Manatee, Pinellas

Descriptive Summary: Positional accuracy on some ramps is + or - 1000 meters. In some cases, positional accuracy is "right on." Field verification is needed.

Contact: Gail MacAulay

Agency: FDNR/Florida Marine Research Institute

Phone: 813- 896-8626

DATA DESCRIPTIVE SUMMARY

Subject: Comprehensive Plan Map for Hillsborough County

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: n/a Scale: 1:24000 Datum: 1927
Date Range of Source Material: 1990 to present

Comment: Header creation date 3/30/92 Co. FUE Generalized to 25'
Not aligned to parcel boundaries

Source/Creator of data: HC Infrastructure Planning/Planning Commission
Update schedule: Semi-annual - after each Plan Amendment Cycle
Positional Accuracy: +/- 200 feet
File Size: big 933.9K Plot using file cofilueclr .32K
Output Format: See Genamap output command description attached*
Output Medium: HP 9-track reel 6250/1600 bpi, HP Optical Disk 322 MB
Geographic Coverage: Unincorporated area of Hillsborough County

Descriptive Summary: Infrastructure Planning Section digitized the original map from 11 area Plan maps generated by the Planning Commission

* -- Genamap command description accompanying this summary is currently filed in office of David Stage, EOG, Tallahassee, FL 904/488-7793.

Contact: David Tabor
Agency: Hillsborough County City-County Planning Commission
Phone: 813/272-5940

DATA DESCRIPTIVE SUMMARY

Subject: Comprehensive Plan Map for Plant City

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: n/a Scale: 1:9600 Datum: 1927
Date Range of Source Material: May 1987 to present

Comment: The original digitized lines were aligned to parcel
boundaries during 1991

Source/Creator of data: The Planning Commission
Update schedule: Semi-annual -- after each Plan Amendment cycle.
Positional Accuracy: +/- 3-5 feet (after alignment to parcel boundaries)
File Size: PCFLUE 452.6K - Plot using file pcflueclr .15K
Output Format: See Genamap output command descriptions attached*
Output Medium: HP 9-track reel 6250/1600 bpi, HP Optical disc 322MB/side
Geographic Coverage: City of Plant City

Descriptive Summary: The Planning Commission digitized the original map
from the official Plan Map generated by the Graphics Section of the
Planning Commission with the addition of plan amendments color coded.

* -- These descriptions are currently on file with David Stage, EOG, in
Tallahassee. 904/488-7793.

Contact: David Tabor
Agency: Hillsborough County City-County Planning Commission
Phone: 813/272-5940

DATA DESCRIPTIVE SUMMARY

Subject: Comprehensive Plan Map for Tampa

Nondigital___ Raster Data___ Vector Data X Point Data___
Resolution: n/a Scale: 1:28800 Datum: 1927
Date Range of Source Material: April '87 to present

Comment: Header creation date 11/21/91. Future Plan 11/15/88/

Source/Creator of data: The Planning Commission
Update schedule: Semi-annual, after each Plan Amendment cycle
Positional Accuracy: +/- 200 feet
File Size: tpaflue, 607.2K - Plot using file tpaflueclr.PU, .18K
Output Format: See Genamap output command descriptions attached*
Output Medium: HP 9-track reel 6250/1600 bpi, HP Optical disc 322MB
Geographic Coverage: City of Tampa

Descriptive Summary: The Planning Commission digitized the original map from the official Plan map generated by the Graphics Section of the Planning Commission (excluded N. annexed area)

* -- Command descriptions could not be entered here; they are on file with David Stage, EOG, Tallahassee, FL. 904/488-7793.

Contact: David Tabor
Agency: Hillsborough County City-County Planning Commission
Phone: 813/272-5940

DATA DESCRIPTIVE SUMMARY

Subject: Comprehensive Plan Map for Temple Terrace

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: n/a Scale: 1:9600 Datum: 1927
Date Range of Source Material: Nov. 1987 to Present

Comment: Header creation date 12/5/91 - 2010 Future Land Use

Source/Creator of data: The Planning Commission
Update schedule: Semi-annual, after each Plan Amendment cycle
Positional Accuracy: +/- 200 feet
File Size: TTFLUE 275.5K - Plot using file ttflueclr.PU .11K
Output Format: See Genamap output command descriptions attached *
Output Medium: HP 9-track reel 6250/1600 bpi. HP Optical disc 322MB/side
Geographic Coverage: City of Temple Terrace

Descriptive Summary: The Planning Commission digitized the original map from the official Plan map generated by the Graphics Section of the Planning Commission.

* -- The attached command descriptions could not be entered here; they are on file with David Stage, EOG, Tallahassee, FL. 904/488-7793.

Contact: David Tabor
Agency: Hillsborough County City-County Planning Commission
Phone: 813/272/5940

DATA DESCRIPTIVE SUMMARY

Subject: Detailed Soil

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: 1:24,000 Datum: 27
Date Range of Source Material: 1984 to 1990

Comment: Hillsborough County 1:20,000 scale soil survey recompiled by
SCS scientist onto 1:24,000 scale quads, then digitized.

Source/Creator of data: FDNR/FMRI, Manatee County in cooperation with SCS

Update schedule: As provided by SCS

Positional Accuracy: +/-

File Size: 10 MB

Output Format: ARC/INFO export file

Output Medium:

Geographic Coverage: Little Manatee River Watershed & surrounding area

Descriptive Summary: Detailed soil data -- certified by SCS. Hillsborough
and Manatee Counties combine for ^100 classifications, fully attributed
in ARC/INFO.

Contact: Gail MacAulay

Agency: FNDR/Florida Marine Research Institute

Phone: 813-896-8626

DATA DESCRIPTIVE SUMMARY

Subject: Domestic Wastewater Residual/Sludge App. Sites

Nondigital____ Raster Data____ Vector Data____ Point Data____

Resolution: Scale: STR Datum:

Date Range of Source Material: 1987 to present

Comment: If permit is renewed at 5 years, then data collected can
exceed 5 years

Source/Creator of data: EPC, based on data supplied by permit applicant

Update schedule: Maximum 5 years, based on permit renewal

Positional Accuracy: +/- Sites are on Hillsborough County Plan/Zone map;unverified

File Size:

Output Format:

Output Medium: Lotus spreadsheet

Geographic Coverage: Cockroach Bay Planning Boundary

Descriptive Summary: Besides position of all sludge application sites,
EPC's map location number allows cross-reference to a database which
includes: folio #, owner address, approval date, expiration date, STR,
acres, vegetative cover, generators and operating status.

Contact: Chris Dunn

Agency: EPC, Hillsborough County

Phone: 813-272-5960

DATA DESCRIPTIVE SUMMARY

Subject: Drainage Basin Boundaries of SWFWMD

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: Datum: NA
Date Range of Source Material: 1988 to 1989

Comment:

Source/Creator of data: USGS quad/USGS Water Resources Division
Update schedule:
Positional Accuracy: +/- ~100-200'
File Size: 4M bytes (SWFWMD)
Output Format: ARC/INFO export format
Output Medium: 9 track tape 1600/6250 BPI
Geographic Coverage: SWFWMD

Descriptive Summary:

Contact: Steve Dicks
Agency: SWFWMD
Phone: (904) 796-7211

DATA DESCRIPTIVE SUMMARY

Subject: Emergency Preparedness/Planning

Nondigital____ Raster Data X Vector Data____ Point Data____

Resolution: street address Scale: Datum:

Date Range of Source Material: to

Comment: Data is based on/in CAMEO, a modelling-planning data system

Source/Creator of data: Hillsborough Co. EPC

Update schedule: quarterly

Positional Accuracy: +/-

File Size: 8 MB

Output Format: 1.44 MB diskette

Output Medium:

Geographic Coverage: Hillsborough County

Descriptive Summary: Data to be used to Emergency Preparedness Planning and for land use planning/rezoning activities. There is the ALOHA section of CAMEO which is a dispersion model for risk assessment and vulnerability analysis of populations. Census data is essential to this program.

Contact: Tom Tamanini

Agency: Air Program, Hillsborough County EPC

Phone: (813) 272-5530

DATA DESCRIPTIVE SUMMARY

Subject: Federal Emergency Management Agency Flood Insurance

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: Datum: NA
Date Range of Source Material: 1970 to 1980's

Comment:

Source/Creator of data: FEMA Panel/SMARTSCAN
Update schedule: No plan
Positional Accuracy: +/- as good as the source materials
File Size: 1M Bytes per 30'X60' USGS quad
Output Format: ARC/INFO export format
Output Medium: 9 track tape 1600/6250 BPI
Geographic Coverage: SWFWMD

Descriptive Summary:

Contact: Steve Dicks
Agency: SWFWMD
Phone: (904) 796-7211

DATA DESCRIPTIVE SUMMARY

Subject: Five Foot contour data from USGS quads

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: Datum: NA
Date Range of Source Material: below to

Comment: Mapping dates of USGS Quads

Source/Creator of data: USGS
Update schedule: Unknown
Positional Accuracy: +/- 40 ft.
File Size: 1M Bytes per 7.5 USGS Quad
Output Format: ARC/INFO export format
Output Medium: 9 track tape 1600/6250 BPI
Geographic Coverage: SWFWMD

Descriptive Summary:
Contours scanned from USGS stable base separates and converted to
ARC/INFO format

Contact: Steve Dicks
Agency: SWFWMD
Phone: (904) 796-7211

DATA DESCRIPTIVE SUMMARY

Subject: Florida Shoreline

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: * Datum:

Date Range of Source Material: to

Comment: * - scale is 1:40,000 or smaller
Digitized from NOAA nautical charts

Source/Creator of data:

Update schedule:

Positional Accuracy: +/-

File Size:

Output Format: ARC/INFO export file

Output Medium: digital

Geographic Coverage: Florida

Descriptive Summary:

Contact: Gail MacAulay

Agency: FDNR/Florida Marine Research Institute

Phone: 813-896-8626

DATA DESCRIPTIVE SUMMARY

Subject: FNAI Biological Conservation Data Base

Nondigital____ Raster Data____ Vector Data____ Point Data____

Resolution: Scale: 1:24000 Datum:

Date Range of Source Material: to present

Comment: Rare/endangered species, exemplary natural communities,
rookeries, managed areas.

Source/Creator of data: Numerous sources, data doc. & processed by FNAI

Update schedule: ongoing/variable

Positional Accuracy: +/- 3 sec radius, 1 min radius, general 5 mi or to quad

File Size: 39 megabytes

Output Format:

Output Medium:

Geographic Coverage: Florida

Descriptive Summary: Data includes fields for county, latitude,
longitude, township and range, section, watershed, and a textural
directions field.

There are three levels to the positional Accuracy

Contact: Katy Nesmith

Agency: Florida Natural Areas Inventory

Phone: (904) 224-8207

DATA DESCRIPTIVE SUMMARY

Subject: Habitat Cover and Wildlife Occurrence Records

Nondigital____ Raster Data X Vector Data____ Point Data____
Resolution: varies at 30 met. Scale: varies* Datum:
Date Range of Source Material: 1988 to current

Comment: * scale varies to 5-10 acres

Source/Creator of data: FGFWFC, Randy Kautz, Jim Cox
Update schedule: Current as new info becomes available; 3-5 years average
Positional Accuracy: +/- 40
File Size: for Tampa Bay, 3 megabytes; 14-30 with older software
Output Format: maps, diskettes
Output Medium: maps, diskettes
Geographic Coverage: Florida

Descriptive Summary: Habitat Cover Maps and wildlife occurrence for the
State of Florida

Contact: Jim Beever
Agency: Florida Game and Fresh Water Fish Commission
Phone: 813/639-3515

DATA DESCRIPTIVE SUMMARY

Subject: Habitat Mapping Including Uplands and Wetlands

Nondigital ☒ Raster Data ☐ Vector Data ☐ Point Data ☐
Resolution: +/- 100 ft. Scale: * Datum:
Date Range of Source Material: 1938 to 1992

Comment: various aerial photographic sources including the National
Archives -- hardcopies on file in Tampa office

Source/Creator of data: various

Update schedule: none

Positional Accuracy: +/- 100 feet

File Size:

Output Format:

Output Medium:

Geographic Coverage: South of Little Manatee River, West of U.S. 41 South

Descriptive Summary: to County Line Road

Various map, incl. seagrass aerial cover trend maps for 1938, 1957 and
1991. 1990 FLUCS coded maps of the same general area.

* = scale is 1:24000 to 1:100,000

Contact: Roy R. "Robin" Lewis

Agency: Lewis Environmental Services, Inc.

Phone: 813/889-9684

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Commission District Map

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: 1:2400 Datum: 19
Date Range of Source Material: 1991 to 1991

Comment: Map of Hillsborough County County Commission District boundaries

Source/Creator of data: Hillsborough County Engineering Services

Update schedule: n/a

Positional Accuracy: +/- 4/10 feet

File Size: .05 gigabytes

Output Format: GENAMAP binary, DXF, DLG III, other

Output Medium: 9-track tape, floppy diskette, hardcopy

Geographic Coverage: Hillsborough County

Descriptive Summary: Map displays existing District boundaries for four single-member commission seats. Boundaries defined in 1991 redistricting based on 1990 Census data.

Contact: Robert B. Keim

Agency: Hillsborough County Engineering Services

Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Comprehensive Phosphate Mine Map

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: n/a Scale: 1:2400 Datum: 19
Date Range of Source Material: 1991 to 1991

Comment: Map displays areas identified as either phosphate mine activity or land reclamation

Source/Creator of data: Hillsborough County Engineering Services
Update schedule: Annual
Positional Accuracy: +/- 25 feet
File Size: .15 gigabytes
Output Format: GENAMAP binary, DXF, DLG III, other
Output Medium: 9-track tape, floppy diskette, hard copy
Geographic Coverage: Specific areas covered

Descriptive Summary: Comprehensive Phosphate Mine Map displays areas affected by mining activity. At present, these include three basic sites: IMCC Big Four, Kingsford Mines and Mobil Chemical's Nichols Mine. Map shows areas based on various reclamation and mining permit categories.

Contact: Robert Keim
Agency: Hillsborough County Engineering Service
Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Contour Map

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: 1:2400 Datum: 19

Date Range of Source Material: n/a to

Comment: Map provides 5-foot contour lines

Source/Creator of data: SWFWMD

Update schedule: none

Positional Accuracy: +/- 25 feet

File Size: .10 gigabytes

Output Format: GENAMAP binary, DXF, DLG III, other

Output Medium: 9-track tape, floppy diskette, hardcopy

Geographic Coverage: Hillsborough County (minus Tampa)

Descriptive Summary: Contour map locates 5-foot contour lines, as originally mapped by SWFWMD. Map was imported for NPDES purposed. Will be eventually replaced by 1-foot or 2-foot contour map.

Contact: Robert B. Keim

Agency: Hillsborough County Engineering Services

Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Existing Land Use Map

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: 1:2400 Datum: 19
Date Range of Source Material: n/a to n/a

Comment: Map shows existing land use by individual land parcels.

Source/Creator of data: Hillsborough County Property Appraiser

Update schedule: Map is dynamic

Positional Accuracy: +/- 4/10 feet

File Size: not calculated

Output Format: GENAMAP binary, DXF, DLG III, other

Output Medium: 9-track tape, floppy diskette, hardcopy

Geographic Coverage: Hillsborough County unincorporated area

Descriptive Summary: Existing Land Use Map displays existing land use category for each land parcel in the unincorporated area. Map is generated based on data provided by linkage to the County Property Appraiser's database (linking field = folio number). Some aggregation of categories occurs.

Contact: Robert B. Keim

Agency: Hillsborough County Engineering Services

Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Impervious Areas Map

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: 1:2400 Datum: 19
Date Range of Source Material: 1990 to 1992

Comment: Map contains information relative to non-residential
impervious areas.

Source/Creator of data: Hillsborough County Engineering Services
Update schedule: Annual, on a three-year cycle
Positional Accuracy: +/- 4/10 feet
File Size: .425 gigabytes
Output Format: GENAMAP binary, DXF, DLG III, other
Output Medium: 9-track tape, floppy diskette, hardcopy
Geographic Coverage: Hillsborough County

Descriptive Summary: Impervious Map provides detailed footprint
information for non-residential sites contributing to runoff. Map is
used to support Stormwater Utility Fee calculations.

Contact: Robert B. Keim
Agency: Hillsborough County Engineering Services
Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County NPDES Map

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: 1:2400 Datum: 1927
Date Range of Source Material: 1990 to 1992

Comment: Map contains information relative to stormwater structures
NPDES industries, landfills, etc.

Source/Creator of data: Hillsborough County Engineering Services

Update schedule: semi-annual
Positional Accuracy: +/- 4/10 feet
File Size: .25 gigabytes
Output Format: GENAMAP binary. DXF, DLG III, other
Output Medium: 9-track tape, floppy diskette, hardcopy
Geographic Coverage: Hillsborough County (minus Tampa)

Descriptive Summary: NPDES map provides data relative to factors used in
determining NPDES compliance and permitting. Map includes stormwater
structure, outfall basin boundaries, NPDES industry sites, landfills,
stormwater flows, riverine basin boundaries and population distributions.

Contact: Robert B. Keim
Agency: Hillsborough County Engineering Services
Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Primary Care Facilities Map

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: 1:2400 Datum: 19
Date Range of Source Material: 1992 to 1992

Comment: Map consists of three layers: Primary Care units, Extended Hours sites and Hospital Services areas.

Source/Creator of data: Hillsborough County Engineering Services
Update schedule: none
Positional Accuracy: +/- 4/10 feet
File Size: .05 gigabytes
Output Format: GENAMAP binary, DXF, DLG III, other
Output Medium: 9-track tape, floppy diskette, hardcopy
Geographic Coverage: Hillsborough County

Descriptive Summary: (1) Primary Care facilities map identifies service areas for human services sites; (2) Extended hours layer identifies sites in (1) that offer extended hours of service; (3) Hospital service areas identifies four primary service hospitals and the areas that they cover.

Contact: Robert B. Keim
Agency: Hillsborough County Engineering Services
Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Significant Wildlife Habitat Map

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: 1:2400 Datum: 19

Date Range of Source Material: 1990 to 1991

Comment: Map displays areas identified as "significant wildlife habitat"

Source/Creator of data: Hillsborough County Engineering Services

Update schedule: annual

Positional Accuracy: +/- 25 feet

File Size: .35 gigabytes

Output Format: GENAMAP binary, DXF, DLG III, other

Output Medium: 9-track tape, floppy diskette, hardcopy

Geographic Coverage: Hillsborough County (minus Tampa)

Descriptive Summary: Significant Wildlife Habitat Map displays areas identified for habitat protection by the BOCC. These areas are plotted onto base and parcel layers. Map will be used by county staff in the land development regulation process.

Contact: Robert B. Keim

Agency: Hillsborough County Engineering Services

Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Water Quality Map

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: 1:2400 Datum: 1927
Date Range of Source Material: 1992 to 1992

Comment: Map displays water quality ratings for streams, rivers, lakes
and Tampa Bay

Source/Creator of data: Hillsborough County Engineering Services
Update schedule: n/a
Positional Accuracy: +/- 4/10 feet
File Size: .10 gigabytes
Output Format: GENAMAP binary. DXF, DLG III, other
Output Medium: 9-track tape, floppy diskette, hardcopy
Geographic Coverage: Hillsborough County and Tampa Bay

Descriptive Summary: Water Quality Map displays water quality levels for
Hillsborough County water bodies -- streams, rivers, lakes and Tampa Bay.
Categories range from poor to good. Data source: Hillsborough County
Stormwater Design Services. Data gathered from SWFWMD and WCRWSA
monitoring stations.

Contact: Robert B. Keim
Agency: Hillsborough County Engineering Services
Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Zoning Map

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: 1:2400 Datum: 1927

Date Range of Source Material: 1987 to 1992

Comment: Map is a catalog of all zoning boundaries created in the
unincorporated area.

Source/Creator of data: Hillsborough County Planning and Development
Management

Update schedule: Constant

Positional Accuracy: +/- 4-10 feet

File Size: .35 gigabytes

Output Format: GENAMAP binary, DXF, DLG III, other

Output Medium: 9-track tape, floppy diskette, hardcopy

Geographic Coverage: Hillsborough County (minus Tampa)

Descriptive Summary: Zoning map provides coverage for all categories of
zoning assigned in the unincorporated area. This project was done to
support Comprehensive Plan zoning conformance; when finalized, maps are
certified as official by BOCC.

Contact: Robert B. Keim

Agency: Hillsborough County Engineering Services

Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Census Tract Map

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: varies Datum: 1927

Date Range of Source Material: 1980 to 1990

Comment: Map of Census blocks, block groups and tracts

Source/Creator of data: US Census Bureau

Update schedule: n/a

Positional Accuracy: +/- 25-100 feet

File Size: .35 gigabytes

Output Format: GENAMAP binary, DXF, DLG III, other

Output Medium: 9-track tape, floppy diskette, hardcopy

Geographic Coverage: Hillsborough County

Descriptive Summary: Map displays census area boundaries

Contact: Robert B. Keim

Agency: Hillsborough County Engineering Services

Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Base Map

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: 1:2400 Datum: 1927

Date Range of Source Material: 1985 to 1991

Comment: Base Map contains physical and major road/railroad
infrastructure elements.

Source/Creator of data: Hillsborough County Engineering Services

Update schedule: constant

Positional Accuracy: +/- 4-10 feet

File Size: 3.02 gigabytes

Output Format: GENAMAP binary, DXF, DLG III, other

Output Medium: 9-track tape, floppy diskette, hardcopy

Geographic Coverage: Hillsborough County (minus Tampa)

Descriptive Summary: Base map represents foundation for all County GIS
activities. Tied to Florida State Plane Coordinate System, it integrates
parcel-based activities with all other geographic analyses projects.

Contact: Robert B. Keim

Agency: Hillsborough County Engineering Services

Phone: 813/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Hillsborough County Parcel Map

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: 1:2400 Datum: 1927

Date Range of Source Material: 1985 to 1991

Comment: Parcel Map contains parcel boundaries and related text for all individual land ownership parcels.

Source/Creator of data: Hillsborough County Property Appraiser

Update schedule: constant

Positional Accuracy: +/- 4-10 feet

File Size: 1.00 gigabytes

Output Format: GENAMAP binary, DXF, DLG III, other

Output Medium: 9-track tape, floppy diskette, hardcopy

Geographic Coverage: Hillsborough County (minus Tampa)

Descriptive Summary: Parcel map represents all individual land ownership parcels in the unincorporated area, Plant City and Temple Terrace. It provides the basis for relating other geographic data to ownership issues and for monitoring development related activities.

Contact: Robert B. Keim

Agency: Hillsborough County Engineering Services

Phone: 812/272-5912, x.3202

DATA DESCRIPTIVE SUMMARY

Subject: Industrial Wastewater Treatment Facil. (IWTF)

Nondigital____ Raster Data____ Vector Data____ Point Data____

Resolution: Scale: 1:24,000 Datum: *

Date Range of Source Material: 1987 to present

Comment: * - Datum: USGS quad sheets

Data range based on 5 year renewal of permits

Source/Creator of data: EPC, based on data supplied on permit applications

Update schedule: Maximum 5 years, based on permit renewal

Positional Accuracy: +/-

File Size: Advanced Revelation and ASCII

Output Format:

Output Medium:

Geographic Coverage: Cockroach Bay Planning Boundary

Descriptive Summary: Besides position of all IWTFs, EPC database includes facility name, industrial type, permit #, expiration date, lat/long street location, method of effluent disposal and plant permitted capacity

Contact: Chris Dunn

Agency: EPC, Hillsborough County

Phone: 272-5960

DATA DESCRIPTIVE SUMMARY

Subject: Land Cover 1950 and Land Cover 1982

Nondigital____ Raster Data X Vector Data____ Point Data____
Resolution: 30 meters Scale: Datum: 27
Date Range of Source Material: to

Comment: Aerial photography 1948 - 52 = 1950 coverage scale 1:24,000
" " 1982 = 1982 coverage

Source/Creator of data:
Update schedule: none planned
Positional Accuracy: +/-
File Size: 6 MB each coverage
Output Format: ERDAS GIS file
Output Medium: digital
Geographic Coverage: Tampa Bay

Descriptive Summary: These coverages were digitized from 1:24,000 scale aerial photography. There are over 20 classes that can be simplified to 9 categories. Includes all of Pinellas county, with partials of Pasco, Hillsborough and Manatee counties.

Contact: Gail MacAulay
Agency: FDNR/Florida Marine Research Institute
Phone: 813-896-8626

DATA DESCRIPTIVE SUMMARY

Subject: Land Use and Biological Coverage

Nondigital____ Raster Data X Vector Data____ Point Data____
Resolution: 30 meters Scale: 1:24000 Datum: 1927
Date Range of Source Material: 1985 to 1991

Comment:

Source/Creator of data: SFWMD, GFFC
Update schedule: Variable
Positional Accuracy: +/- Varies; wuad (+/- 40 to ^1/4 section)
File Size: 100K - 5MB
Output Format: PC (DOS), ARC, ASCII, etc.
Output Medium: Floppy, 9-track tape, 20MB Bernoulli
Geographic Coverage: South Florida

Descriptive Summary: Raster 1991 update, Eagle nest locations, woodstock and wading colonies, breeding bird survey, nesting and feeding areas, 50 priority species included

Contact: Arnold Banner/Robert Pace
Agency: U.S. Fish and Wildlife Service
Phone: 407-562-3909

DATA DESCRIPTIVE SUMMARY

Subject: Land Use/Cover Based on Dot Scheme Level II

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution:____ Scale:____ Datum: NAD27
Date Range of Source Material: Dec. 1989 to Jan. 1991

Comment:

Source/Creator of data: Color IR aerial photo/GEONEX
Update schedule: 5 years
Positional Accuracy: +/- estimated from 50 ft. to 100 ft.
File Size: Av. 750,000 bytes per 7.5' USGS quad
Output Format: ARC/INFO tape 1600/6250 BPI
Output Medium: 9 track tape 1600/6250 BPI
Geographic Coverage:

Descriptive Summary:

Photo interpretation of 1:24,000 scale color IR photo. Mapping resolution is one acre for wetlands and five acres for all other classes.

Contact: Steve Dicks
Agency: SWFWMD
Phone: (904)796-7211

DATA DESCRIPTIVE SUMMARY

Subject: Major Air Pollutions Sources

Nondigital____ Raster Data X Vector Data____ Point Data____
Resolution: USGS quads Scale: 1:24,000 Datum:
Date Range of Source Material: 1974 to present

Comment: both hard copy and computer database

Source/Creator of data: EPC
Update schedule: quarterly
Positional Accuracy: +/-
File Size: data set 2 MB
Output Format: PRN files
Output Medium: 1.44 MB diskette/mainstream tape
Geographic Coverage: Hillsborough County

Descriptive Summary: Has the HTMs for the permitted air pollution sources in Hillsborough County. The data is in a state system that is GIS-compatible. Their systems is called Air Pollution Information System (APIS).

Contact: Tom Tamanini
Agency: Air Monitoring, Air Program, EPC Hillsborough County
Phone: (813) 543-5530

DATA DESCRIPTIVE SUMMARY

Subject: Meteorological Data

Nondigital X Raster Data Vector Data Point Data

Resolution: variable Scale: Datum:

Date Range of Source Material: 1/01/83 to present

Comment: monthly rain totals available from 1970 to present

Source/Creator of data: NWS

Update schedule: daily

Positional Accuracy: +/- as reported but with quality control checks

File Size: variable depending on requested information

Output Format: ASCII

Output Medium: 1.44 MB diskette/networking such as Internet

Geographic Coverage: Available NWS observation sites in Southeastern USA

Descriptive Summary: Data consists of daily max and min air temperature and their corresponding departure from normal. Daily rainfall also available. Selected stations also have daily evaporation 4" soil temps, solar radiation and hours of leaf wetness. Summaries of these parameters are available in various formats.

Contact: Karl Harker

Agency: National Weather Service

Phone: 205/844-4514

DATA DESCRIPTIVE SUMMARY

Subject: Plant Communities

Nondigital___ Raster Data X Vector Data___ Point Data___
Resolution: 30m Scale: Datum: 27
Date Range of Source Material: to

Comment:

Source/Creator of data: Fl. Game & Fresh Water Fish Commission/FDOT
Update schedule: unknown
Positional Accuracy: +/- 100 ft
File Size:
Output Format: ERDAS GIS file
Output Medium:
Geographic Coverage: TBRPC: Hillsborough, Manatee, Pasco, Pinellas co.

Descriptive Summary: Contains 22 classifications as interpreted from
Landsat TM data. Classes may be combined into four basic categories for
simplicity.

Contact: Gail MacAulay
Agency: FDNR/FMRI
Phone: 813-896-8626

DATA DESCRIPTIVE SUMMARY

Subject: Radon

Nondigital X Raster Data____ Vector Data____ Point Data____
Resolution: Scale: Datum:
Date Range of Source Material: to

Comment: This information is being compiled and is currently under development

Source/Creator of data: EPC and Soil Conservation Service

Update schedule:

Positional Accuracy: +/-

File Size:

Output Format:

Output Medium:

Geographic Coverage:

Descriptive Summary: This information will provide locations of radon levels in Hillsborough County

Contact: Tom Tamanini

Agency: Air Program, EPC, Hillsborough County

Phone: (813)272-5530

DATA DESCRIPTIVE SUMMARY

Subject: Roads

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: * Datum:

Date Range of Source Material: to

Comment: * - Scale is 1:100,000

Source/Creator of data: DLG

Update schedule:

Positional Accuracy: +/-

File Size:

Output Format: ARC/INFO export coverage

Output Medium: digital

Geographic Coverage: Counties: Hillsborough, Manatee, Pinellas Pasco, Polk

Descriptive Summary: Needs updating

Contact: Gail MacAulay

Agency: FDNR/Florida Marine Research Institute

Phone: 813-896-8626

DATA DESCRIPTIVE SUMMARY

Subject: Sanitary Landfills (Old and Active)

Nondigital____ Raster Data____ Vector Data____ Point Data____
Resolution: Scale: 1:48,000 Datum: STR
Date Range of Source Material: 1947 to 1992

Comment: These sites remain old until cleanup

Source/Creator of data: EPC

Update schedule: As new sites are permitted or discovered -- realtime

Positional Accuracy: +/- 200 feet

File Size: Five entires

Output Format:

Output Medium:

Geographic Coverage:

Descriptive Summary: Five old sites are known in the planning area

Contact: Hooshang Boostani

Agency: EPC Hillsborough County, Waste Mgt. Division

Phone: (813) 272-5788

DATA DESCRIPTIVE SUMMARY

Subject: SEAGRASS Mapping of Tampa Bay

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: Datum: NAD27

Date Range of Source Material: Dec. 1988 to

Comment:

Source/Creator of data: Color aerial photo/GEONEX

Update schedule: Two years

Positional Accuracy: +/- 50 feet - 100 feet

File Size: Av. 500,000 bytes per 7.5' USGS quad

Output Format: ARC/INFO export format

Output Medium: 9 track tape 1600/6250 BPI

Geographic Coverage: Tampa Bay

Descriptive Summary:

Photo interpretation of 1:24,000 scale color photo. Mapping resolution is one acre.

Contact: Steve Dicks

Agency: SWFWMD, SEAGRASS 88

Phone: (904)796-7211

DATA DESCRIPTIVE SUMMARY

Subject: SEAGRASS Mapping of Tampa Bay

Nondigital___ Raster Data___ Vector Data X Point Data___

Resolution: Scale: Datum: NAD27

Date Range of Source Material: Dec. 1990 to

Comment:

Source/Creator of data: Color aerial photo/GEONEX

Update schedule: 2 - 3 years

Positional Accuracy: +/- 50 feet - 100 feet

File Size: Av. 500,000 bytes [er 7.5' USGS Quad

Output Format: ARC/INFO Export Format

Output Medium: 9 Track Tape 1600/6250 BPI

Geographic Coverage: Tampa Bay

Descriptive Summary:

Photo interpretation of 1:24,000 scale color photo. Mapping resolution is one acre.

Contact: Steve Dicks

Agency: SWFWMD

Phone: (904)796-7211

DATA DESCRIPTIVE SUMMARY

Subject: Seagrass 1990 and Seagrass 1988

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: Datum:

Date Range of Source Material: to

Comment: Please refer to SWFWMD for a full history of this data.

Source/Creator of data: SWFWMD

Update schedule: unknown

Positional Accuracy: +/-

File Size: % MB each coverage

Output Format: ARC/INFO export file

Output Medium:

Geographic Coverage: Tampa Bay

Descriptive Summary: 1990 seagrass data and 1988 seagrass data. Please refer to Southwest Florida Water Management District as data creators.

Contact: Gail MacAulay

Agency: FDNR/FMRI

Phone: 813-896-8626

DATA DESCRIPTIVE SUMMARY

Subject: Section, Township, Ranges from 1:24000 USGSmap

Nondigital____ Raster Data____ Vector Data X Point Data____

Resolution: Scale: Datum: NAD27

Date Range of Source Material: 1955 to 1987

Comment:

Source/Creator of data: In-house

Update schedule: N/A

Positional Accuracy: +/- 40 feet

File Size: 4MB covering SWFWMD

Output Format: ARC/INFO export format

Output Medium: 9-track tape 1600/6250 BPI

Geographic Coverage: SWFWMD

Descriptive Summary:

Contact: Steve Dicks

Agency: SWFWMD

Phone: 904/796-7211 x.4200

DATA DESCRIPTIVE SUMMARY

Subject: Small Quantity Generators (CESQGS)

Nondigital____ Raster Data____ Vector Data____ Point Data____
Resolution: Scale: address Datum:
Date Range of Source Material: 1984 to present

Comment:

Source/Creator of data: EPC w/aid of Hillsborough County Tax Collector
Update schedule: Continuous (1500 - 3000 identified annually)
Positional Accuracy: +/- STR and physical addresses
File Size: 3000 sites
Output Format: FoxPro database and hardcopy
Output Medium: 1.44 diskette; 60 MB magnetic tape
Geographic Coverage: Cockroach Bay Planning Area

Descriptive Summary: This is a combination of verified and unverified
list of around 3000 sites

Contact: Hooshang Boostani
Agency: EPC Hillsborough County, Waste Mgt. Division
Phone: 813-272-5788

DATA DESCRIPTIVE SUMMARY

Subject: Stationary Storage Tank Facilities

Nondigital____ Raster Data X Vector Data____ Point Data____
Resolution: Scale: Lat/Long Datum:
Date Range of Source Material: 1985 to present

Comment: EPC/FDER - EPC input information to DER system

Source/Creator of data: EPC
Update schedule: portions of database updated annually
Positional Accuracy: +/-
File Size: unknown
Output Format: unknown
Output Medium: 9-track tape
Geographic Coverage: Cockroach Bay Study Area

Descriptive Summary: Approximately 51 sites in study area

Contact: Hooshang Boostani
Agency: EPC, Hillsborough County Waste Mgt. Div., Storage Tank Progr
Phone: 813-272-5788

DATA DESCRIPTIVE SUMMARY

Subject: Storm Water Management Permit Boundaries

Nondigital___ Raster Data___ Vector Data X Point Data___

Resolution: Scale: Datum: NAD 27

Date Range of Source Material: 1975 to Present

Comment:

Source/Creator of data: SWFWMD/SMARTSCAN

Update schedule: Every year

Positional Accuracy: +/- ~200-300'

File Size: Less than 500K Bytes per 30' X 60' USGS Map

Output Format: ARC/INFO Export

Output Medium: 9 Track Tape 1600/6250 BPI

Geographic Coverage:

Descriptive Summary:

ARC/INFO files contains points ID to relate to external database

Contact: Steve Dicks

Agency: SWFWMD, SWMPOLY

Phone: (904)796-7211

DATA DESCRIPTIVE SUMMARY

Subject: Storm Water Management Permit Points

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: Datum: NAD27
Date Range of Source Material: 1975 to Present

Comment:

Source/Creator of data: SWFWMD/SMARTSCAN
Update schedule: every year
Positional Accuracy: +/- ~200-300'
File Size: Less than 100K Bytes Per 30'X 60' USGS Map
Output Format: ARC/INFO Export
Output Medium: 9 Track Tape 1600/6250 BPI
Geographic Coverage:

Descriptive Summary: ARC/INFO files contains point ID to relate to external database

Contact: Steve Dicks
Agency: SWFWMD, SWMPNT
Phone: (904)796-7211

DATA DESCRIPTIVE SUMMARY

Subject: SWFWMD - SWIM Bibliographic Database (BDB)

Nondigital ☒ Raster Data ☐ Vector Data ☐ Point Data ☐

Resolution: Scale: Datum:

Date Range of Source Material: 1853 to 1989

Comment:

Source/Creator of data: varies; compiled by SWFWMD and SWIM

Update schedule: none

Positional Accuracy: +/-

File Size: 5.2 MB

Output Format: dBASE III+ (compressed with PKZIP compression utility)

Output Medium: 1.44 MB floppy disk

Geographic Coverage: Tampa Bay area

Descriptive Summary: Goal was to identify, locate, briefly describe and evaluate the quality of data pertinent to Tampa Bay. Contains 1,356 entries for books, reports and journal articles. In addition, each entry includes a list of parameters collected, sampling methods used, etc.

Contact: Holly Greening

Agency: Tampa Bay National Estuary Program

Phone: 813-893-2765

DATA DESCRIPTIVE SUMMARY

Subject: Two foot contours and spot elevation

Nondigital____ Raster Data____ Vector Data X Point Data____
Resolution: Scale: Datum: NAD2783
Date Range of Source Material: 1970 to Present

Comment:

Source/Creator of data: original photogrammetric survey
Update schedule: as needed
Positional Accuracy: +/- 10 ft.
File Size: 1 m bytes per aerial map (section)
Output Format: ARC/INFO export format
Output Medium: 9 track tape 1600/6250 BPI
Geographic Coverage: SWFWMD

Descriptive Summary:
only small portions of the district has two foot contour digital files

Contact: Steve Dicks
Agency: SWFWMD
Phone: (904)796-7211

DATA DESCRIPTIVE SUMMARY

Subject: USDA/SCS Detailed soils maps/county soil atlas

Nondigital____ **Raster Data**____ **Vector Data** X **Point Data**____

Resolution:____ **Scale:**____ **Datum:** NAD27

Date Range of Source Material: Based on to

Comment: SCS Soil Maps

Source/Creator of data: SCS

Update schedule: N/A

Positional Accuracy: +/- as good as the source data

File Size: 750,000 bytes per 7.5' USGS Quad

Output Format: ARC/INFO export format

Output Medium: 9 track tape 1600/6250 BPI

Geographic Coverage: SWFWMD

Descriptive Summary:

Current coverages include:

Hernando, Pasco, Sarasota, Hardee, Desoto, Citrus, Polk, Hillsborough

Contact: Steve Dicks

Agency: SWFWMD

Phone: (904)796-7211

DATA DESCRIPTIVE SUMMARY

Subject: Valid EPA Wetland Delineations, Total # Surveys

Nondigital X Raster Data___ Vector Data___ Point Data___

Resolution: Scale: Varies Datum:

Date Range of Source Material: to

Comment: Surveys are minimally good for 5 years. Life can be extended if survey is incorporated into governmental approval

Source/Creator of data: Variety of Florida professional land surveyors

Update schedule: Varies (see comments above); usually every 5 years

Positional Accuracy: +/-

File Size: surveys

Output Format: hard copy

Output Medium:

Geographic Coverage: Varies according to each parcel boundary & location

Descriptive Summary: These surveys represent a separate legal layer where each has signed off wetlands delineation under Ch. 1-11 of FPC rules.

There are other sources for "estimates" of where wetlands exist in study.

A separate listing of each survey is attached, giving project name, scale, datum, specific date range and land surveyor name.

Contact: Charles Courtney

Agency: Environmental Protection Commission, Hillsborough County

Phone: 813-272-7104

DATA DESCRIPTIVE SUMMARY

Subject: Water Quality Data

Nondigital____ Raster Data____ Vector Data____ Point Data____

Resolution: Scale: Lat/long Datum: NOAA

Date Range of Source Material: 1/1/ to present

Comment: The datum is 1927 N. American NOAA chart #11412

A new suite of samples is collected every month

Source/Creator of data: EPC Water Quality Lab, Tom Cardinale

Update schedule: Database is updated in month following sample collection

Positional Accuracy: +/- 100, based on field sight reference points

File Size: = or - 30,000 bytes/year; to date, 552,000 bytes in this area

Output Format: ASCII or Revelation database

Output Medium: Diskettes, Maynstream Tape or Bernoulli cartridge

Geographic Coverage: Cockroach Bay Planning Area

Descriptive Summary: Data collected at 3 sites (stations 112, 113 136).

Each site has as many as 53 different parameters: station #, date, depth, air & water temp., color, secchi, turbidity, residue, conductivity, salinity, dissolved oxygen, pH, biochemical oxygen demand, chlorophyll, much more. For more info, contact Tom Cardinale...

Contact: Tom Cardinale

Agency: EPC of Hillsborough County, Environmental Monitoring Section

Phone: (813)272-5960

DATA DESCRIPTIVE SUMMARY

Subject: Water Quality Monitoring Database

Nondigital____ Raster Data____ Vector Data____ Point Data X
Resolution: Scale: 1:100000 Datum: 1927
Date Range of Source Material: 1966 to 1971

Comment: Scattered time samples

Source/Creator of data: Cooperative agency input
Update schedule: 3-5 years
Positional Accuracy: +/- 33 meters
File Size: 1 megabyte
Output Format: ARC/INFO interchange
Output Medium: 3.5" floppy, 9-track 1600 BPI
Geographic Coverage: TBRPC (Pasco, Hillsborough, Manatee, Pinellas)

Descriptive Summary: Sampling Methodology and Location

Contact: Marshall Flynn
Agency: Tampa Bay Regional Planning Council
Phone: 813-577-5151

DATA DESCRIPTIVE SUMMARY

Subject: Water Quality Monitoring Database

Nondigital___ Raster Data___ Vector Data___ Point Data X
Resolution: Scale: 1:100000 Datum: 1927
Date Range of Source Material: 1966 to 1991

Comment: Scattered time samples

Source/Creator of data: Cooperative agency input
Update schedule: 3 - 5 years
Positional Accuracy: +/- 33 meters
File Size: 1 megabyte
Output Format: ARC/INFO interchange
Output Medium: 3.5" floppy diskette, 9-track 1600 BPI
Geographic Coverage: TBRPC (Pasco, Hillsborough, Manatee, Pinellas co.)

Descriptive Summary: Sampling methodology and location

Contact: Marshall Flynn / Peter Clark
Agency: Tampa Bay Regional Planning Council
Phone: 813-577-5151

DATA DESCRIPTIVE SUMMARY

Subject: Water Resources Database

Nondigital ☒ Raster Data ☐ Vector Data ☐ Point Data ☐
Resolution: Scale: Datum:
Date Range of Source Material: 1991 to pres

Comment: Hillsborough County date range

Source/Creator of data: USGS
Update schedule: daily
Positional Accuracy: +/-
File Size:
Output Format:
Output Medium:
Geographic Coverage: nationwide

Descriptive Summary: Laboratory and field water quality data, intermittent water level, intermittent discharge data are stored in in one database. Daily (continuous) measurements of water level, discharge, velocity and selected water quality data are stored in another database. Meteorological data may exist in both databases.

Contact: Yvonne Stoker
Agency: U.S.G.S.
Phone: 813/228-2124

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**INTERAGENCY DATA SHARING THROUGH GIS
FOR COCKROACH BAY**

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First Report

September 1992

FOREWORD

This is the first in a series of two reports to the Tampa Bay National Estuary Program on an Action Demonstration Project entitled: " Interagency Data Sharing through GIS for Cockroach Bay".

The "work" under this project involves contributed effort by many agencies, but these reports result from the Environmental Protection Commission of Hillsborough County's analysis of its successes and failures in carrying out each of the five tasks in the Project outline.

Funding for this project was delayed beyond the project start date. Nevertheless, the project has proceeded on schedule as originally proposed. This first report was due at the completion of Task 2, Convening of Consensus Groups, and this task was completed in July, 1992. Reporting was delayed to allow the funding to catch up with the project.

ACKNOWLEDGEMENTS

This project has relied on the voluntary cooperation of a number of individuals/agencies. Certainly the coordinative assistance of Holly Greening and Dick Eckenrod of the Tampa Bay National Estuary Program helped us get underway, but it was with the consistent support of Bob Keim and his staff of the Hillsborough County GIS section, as well as the following individuals that we have progressed so far toward our goal to date: Dale Coe, Iwan Cheronenko, Hoostang Boostani, and Chris Dunn of the EPC of Hillsborough County; Drs. Steve Dicks and Tom Lo of the Southwest Florida Water Management District; Dr. Dave Gowan and Early Sorenson of the Florida Department of Environmental Regulation, Carl Harker of the National Weather Service; Robin Lewis of Lewis Environmental Services, Inc.; Bill Lofgren of the Tampa Bay Regional Coordinating Council; David Stage of the Governor's Office; Gail MacAulay of the Department of Natural Resources; Robert Pace of the U.S. Fish and Wildlife Service; Yvonne Stocker of the U.S. Geological Survey and Jim Beaver of the Florida Game and Fresh Water Fish Commission.

ABSTRACT

This first report summarizes the rationale for consolidating data for the Cockroach Bay Aquatic Preserve study area and describes the procedural useage of the Consensus Group methodology developed by the State of Florida's Growth Management Data Network Coordinating Council. Examples of draft and final Issue Statements are provided as well as examples of how this voluntary process has worked for this project. The use of Data Descriptive Summaries has proven to be particularly effective in targeting data for acquisition. No major problems have been encountered to date and over a million dollars worth of data, already produced by public expenditure for other purposes, has already been transferred. The development of data is usually the most expensive phase and the sharing of data represents a compounding of the value of a public dollar spent while reducing the liklihood of needless duplication of data development.

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LIST OF ATTACHMENTS

ATTACHMENT

- A Cockroach Bay Aquatic Preserve Comprehensive Plan Amendment.
- B Samples of the Consensus Group Methodology, Quality and Accuracy Report Template, and Data Descriptive Summary Template developed in the Pilot Study.
- C Memorandum of Understanding among regional Agencies.
- D Initial Draft Issue Statement and blank copy of Data Descriptive Summary with instructions for completing it.
- E Agenda for First Consensus Meeting.
- F Survey Questionnaire and Results.
- G Second Consensus Agenda and Attendees
- H Second Issue Statement
- I Cost Estimates for Digital Data

INTRODUCTION

The Cockroach Bay Aquatic Preserve bounds an area which includes the headwaters and oligohaline habitat for the eastern portion of the Middle Segment of Tampa Bay (Figure 1). Cockroach Bay has some of Tampa Bay's most pristine habitat and generally good water quality. The Federal Coastal America's Program has recently funded \$300,000 toward an estuarine restoration project on Cockroach Bay's northern shoreline and Florida's SWIM Program is funding at least an equal amount on that restoration effort. Additionally, there has been an award of a \$400,000 EPA Clean Water Act Section 319 (h) Nonpoint Source Set aside grant to fund construction of a stormwater system designed to treat some of the agricultural runoff to Cockroach Bay. Once in place, such massive public expenditures require some future assurance of the long term viability of the investment. Such assurance comes largely through the effort of local and regional regulatory agencies. The Florida Department of Natural Resources has had an approved Aquatic Preserve Management Plan on the shelf since 1987, but little has been done to carry out its recommendations. Clearly, protection of the valuable natural resources in the Preserve has lacked implementation of a coordinated local management plan and there is already some evidence accumulating that there may be chronic problems in the Preserve related to boat propeller scarring of seagrass beds, water quality degradation, exotic plant encroachment, habitat modification and destruction.

Through independent research, Robin Lewis (Personal Communication, 1991) has documented serious, cumulative impacts from propeller scarring to the seagrass beds of Hole-in-the-Wall Pass in Cockroach Bay. The most recent NOAA Status and Trends Report (Long et al., 1991) has documented some of the higher levels of Chlordane and Mirex for Tampa Bay within the Cockroach Bay Aquatic Preserve and recently (1991) the Florida Department of Natural Resources has temporarily discontinued shellfish bacteriological monitoring in Cockroach Bay after closing the area to shellfishing. SWIM testing of sediments in some existing borrow pits of the Coastal America's site has shown some unexpectedly high levels of some metals (e.g. silver) and the presence of DDT. These potential water quality problems could be due to untreated agricultural stormwater runoff and large numbers of septic tanks in the Bay's watershed.

Realizing local responsibility to protect local resources, the Hillsborough County Board of County Commissioners (BOCC) began efforts to offer the Preserve a higher level of protection. In 1991 the Board requested that the Hillsborough County City-County Planning Commission (HCCCPC) develop a management strategy for Cockroach Bay. A copy of the Comprehensive Plan Amendment drafted as a primary component of the strategy is included in Attachment A.

The Plan amendment called for the BOCC to establish the Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT). In 1992 the Board sitting as the Environmental Protection Commission (EPC) amended Ch 1-11 of its Rules (covering wetlands) to protect

seagrasses from intentional destruction and created the concept of "Recovery Areas" for the purpose of allowing areas where destruction of these marine wetlands have been destroyed to recover. Four seagrass Recovery Areas have already been established in Cockroach Bay.

The existing data base of pertinent natural resources information that would be useful for CAPMAT to further develop a management strategy, monitor, and implement regulatory and control strategies for the Preserve is spread among a multitude of agencies and it has been determined that although the data are maintained and updated by each of the respective agencies, there should be a survey of this available data and an attempt to gather it so that more immediate response, based on a thorough knowledge of the resources is possible.

In 1991 the Office of the Governor conducted a Pilot study in the Tampa Bay Region to develop ways that agencies could share data. The idealized format for interaction between state agency heads sitting as the Growth Management Data Network Coordinating Council and local governments wishing to share or better define meta-data can be seen in Figure 2. The results of that study provided tools (e.g. Consensus Group Methodology, Quality and Accuracy Report Templates, Data Descriptive Summaries, and a Centralized Florida Spatial Data Directory or Card Catalogue) for implementing one of the prime recommendations of the NEP Implementation Plan, Data Management. Samples of these documents/methodologies can be found in Attachment B. A Regional Advisory Committee (RAC) was formed as an outgrowth of the Governor's Pilot Study. The RAC consists of the executives of agencies surrounding Tampa Bay (e.g. Administrators of Counties, EPC, FDOT, FDER, SWFWMD) who have signed a Memorandum of Understanding (Attachment C) to cooperate in interagency data sharing together with a Facilitator sitting at the Tampa Bay Regional Planning Council, who acts as liaison with the Growth Management Data Network Coordinating Council (GMDNCC) in Tallahassee. The RAC uses the consensus group methodology developed by the Governor's Pilot study as well as its Data Descriptive Summary, and Quality and Accuracy Templates to facilitate data exchange. The results of attempts to catalogue and transfer data by such consensus groups as well as their recommendations are to be transferred to the GMDNCC for review and eventual input to the modern accessible Florida Spatial Data Directory (Recently renamed "Card Catalogue"). The Card Catalogue represents a "Corporate Memory" of the data, its quality and accuracy, as well as the issues addressed in the consensus Groups.

The Tampa Bay NEP has seen the value of trying to utilize this existing system. In its draft Data Management Plan it recommends keeping data in the control of individual agencies as an advantage that doesn't require the development and maintenance of a central repository, but which keeps the data sets closely linked to people who are experts on their contents and structure. The draft Data Management Plan also calls for the development of a central subject directory, designed for the specific purpose of directing users to data stored in the individual agencies. In a survey of agencies by NEP's consultant, 39% indicated that they required access to maps/maps-data, 78 % indicated that they had worked on a project using GIS in the last year, and 77% indicated that they expected access to GIS to be "extremely important" to their work in the next five years.

Recognizing that: (1) there has heretofore been an impediment to active sharing of massive amounts of already available data among agencies; (2) there is now an untested procedure to facilitate such data sharing; (3) the local government has a real time need to access specific types of data for the management and protection of a pristine embayment of a small, predominantly rural watershed and one of Tampa Bay's most valuable resources; and (4) that the NEP Data Management Strategy recommends that data be shared for specific purposes such as this; this project will demonstrate how voluntary interagency coordination and data sharing among involved parties can work.

This demonstration project concentrates on the "process" of data sharing in the format developed by the Governor's pilot study. Herein we test how well that system can work for NEP's long range goals also. This project will develop information on the pitfalls to effective data sharing while attempting to demonstrate that widely divergent sources of data, important to local government, can be effectively imported for local use. Specific objectives of the project include:

- Demonstrate a locally coordinated initiative in data sharing to protect an important Bay resource.
- Identify problems or impediments to using the Consensus Group methodology developed by RAC for this type of project. Recommend solutions to these types of impediments for future implementation.
- While keeping the data sets closely linked with the respective producer agencies, demonstrate the consolidation of data for the specific use of CAPMAT and other agencies and researchers.
- Test and demonstrate the feasibility of using the state's, Florida Spatial Directory as a Central Subject Directory for NEP.

METHODS

In the April to June 1992 period EPC and City-County Planning (HCCCPC) staff met to coordinate development of a general matrix of the types of natural resources data that could be useful to CAPMAT. The first test of the state's Growth Management Data Network Coordinating Council format for data sharing was initiated by a written notification 5/14/92 by EPC to the RAC that EPC wished to convene a Consensus group meeting on the Cockroach Bay Project unless there were objections. No objections were received, so EPC prepared a draft issue statement over the period 5/14/92 to 6/2/92 and this draft was discussed extensively with HCCCPC staff, County GIS staff and with the RAC's Facilitator (Central Information Unit), Bill Lofgren. The Facilitator, in turn, elicited comment from David Stage of the Growth Management Data Network Coordinating Council in the Governor's Office.

After minor revision, the Facilitator mailed the initial draft issue statement and a blank Data Descriptive Summary (and Instructions for completing it, See Attachment D) to the RAC members and other intended participants on June 8, 1992 inviting all to attend the first Consensus Group meeting on June 25, 1992.

Over the period 6/8-6/22/92 the Consensus Group Chairman made telephone contact with all but 2 of the targeted agencies to see if they had any questions and encourage their attendance at the June 25 meeting. At the time of the first Consensus meeting on Cockroach Bay the NEP had in hand a proposal for the implementation of a data management strategy for NEP. The proposal was under review by an NEP TAC subcommittee due for comment in a review meeting scheduled for 8 July. Some of the data management components developed by the RAC were prominently mentioned in NEP's data strategy and addressed in the implementation proposal (e.g. protocols = Q & A templates, Card Catalogue = Card Catalogue etc).

Over the period 6/8-6/25 certain agencies read the draft issue statement and followed the directions in the invitation to the 25 June Consensus Group to prepare Data Descriptive Summaries. This was the first test of voluntary cooperation and included both signatories to the Regional Advisory Committee's MOU (i.e. those committed in writing to follow these procedures) and other agencies who were not signatories.

Consensus Meetings- 6/25/92 and 7/9/92

After introductions and distribution of the meeting agenda (Attachment E), a survey questionnaire (Attachment F), designed to ascertain the level of agency preparedness for the first meeting, was distributed and filled out by each participant at the beginning of the first consensus meeting.

After filling out the survey questionnaire, the group began a review and revision of the draft Issue Statement. This effort was not concluded by the end of the meeting, the group revised as far as the first Action Statement. A second meeting was, therefore, scheduled for 9 July at 13:00 at the EPC. Prior to the 2nd meeting the Chairman, again, called all invitees and worked with the Facilitator to revise the issue statement. The revised issue statement was mailed to all members of the Consensus group on July 1, 1992.

The draft issue statement revision was completed during the second meeting and finalized for presentation to the RAC on 8/20/92. The RAC approved the Issue Statement and a copy was retained by the Facilitator for future reference. Following the meeting and over the period 7/9/92 to 7/21/92 the Chairman and facilitator broke the matrix out by agency and the facilitator forwarded a reminder letter to each agency requesting that Data Descriptive summaries be filled out for each of the data types listed for that agency.

Over the period 8/20/92 to 10/21/92 the Consensus Group Chairman had several meetings with the County GIS coordinator to discuss prioritizing the list of available data layers. At the same time the Chairman continued to seek via telephone voluntary submittal of Data Descriptive Summaries from a number of Producers who had not completed and returned them.

The producers of multiple data layers (e.g. SWFWMD, EPC, FDNR-MRI, Hillsborough County) were selected as the first priority for data transfer. Because of the work involved the as yet unspecified needs of the as yet unappointed CAPMAT group, a decision was made to try to import data in its existing format and to delay manipulation of the data (e.g. matching, scale correction to base map, etc) until the actual need for more specificity arose from within CAPMAT. Although the appointment of CAPMAT members need not occur until the end of 1992, the Chairman has made several attempts to remind EPC Commissioners of the need to get appointees in place as soon as possible in order to take full advantage of the fruits of this project. The EPC Commissioners were not ready to involve themselves in September 1992 and stated that the action and discussion of appointees would take place at an as yet undesignated future BOCC meeting.

Once Data Descriptive Summaries were received by the Chairman, copies were forwarded to David Stage for inclusion in the GMDNCC's modem-accessible, card catalogue and to the County GIS Coordinator.

Over the period 8/20/92 to 9/22/92 the Chairman arranged visits to the GIS sections of these producers (or visits to County GIS by producers who had hard copy that needed to be entered into the County system) for the County GIS coordinator to meet the principals and provide for discussion of the mechanisms of transfer. County GIS then began officially requesting the transmittal of the data. Although the County Genemap system is different from the GIS software of the majority of the producers (ArcInfo) Genemap does have an ArcInfo Import feature that was tested and found to work satisfactorily on ArcInfo export files.

RESULTS

The results are incomplete at this writing, however, the status for each of the action items listed in the proposal to NEP are listed below along with observations of problems and successes that were encountered at each step. Conclusions and recommendations for correcting problems will be reserved for the final report.

Task 1. Development of a matrix and initial communication with agencies.

The EPC and HCCCPC developed an initial natural resources matrix for the Cockroach Bay Planning area over the period April 1992 to June 1992. The two agencies jointly spent over forty hours in this endeavor. The format for the matrix built on an effort that the FDER Tallahassee GIS section had developed for an internal survey of FDER and included the Major categories of: Natural Resources, Manmade Influences, Political Jurisdictions, Projects and Plans, and Miscellaneous. Within the major categories from 3 to 47 separate layers of potential interest were identified. In May the RAC authorized the formation of the Consensus Group. On 6/3 the Chairman was notified by the HCCCPC that the draft Comp Plan Amendment had been adopted locally and had been forwarded to DCA for review and approval. This necessitated some fine tuning of the Issue statement in the first Consensus Meeting.

On 6/8 FSU Homer Hoyt Center (Steven Hodges) scheduled appointment with EPC to interview them on this project on 7/7. The Chairman met with staff of the Center on 7/7 and found out that they were working on a project funded by FDER to evaluate the consistency of the goals, objectives, policies, and implementation strategies contained in the SWIM, Aquatic Preserve and Local Comprehensive Plans for two areas in the state, one of which was the Cockroach Bay Aquatic Preserve.

Over the period 6/8 to 6/22 the Chairman had called all addressees (except SCS and the National Weather Service, two agencies not needed for the first meeting) to see if they had any questions and encourage their attendance at the first Consensus meeting and the filling out of the Data Descriptive summaries prior to that meeting. All but Manatee County were contacted. Most had not yet read the letter. All but Homer Hoyt Center planned to attend. US Fish and Wildlife's addressee, Arnold Banner, was on leave and no one at USF&W knew about the letter they had received. The Chairman was also advised that Mr. Banner might be leaving the agency soon. He is their only GIS person and concern was expressed that they might not be in a position to participate if he does leave.

Task 2. Convening of Consensus Groups.

Consensus group meetings provide an opportunity for experts to brainstorm issues and to develop solutions to common problems. This format was used for this project to refine the issues concerning the Cockroach Bay Aquatic Preserve and in particular to refine the matrix of data types and data sources.

The survey that was conducted at the beginning of the first Consensus meeting presented some interesting results: 1.) Of the 13 invitees only 4 failed to attend or send a representative; (2) 5 additional "interested parties" attended; (3) All attendees had received and read the draft "Issue statement"; (4) All but 3 attendees and all but 1 invitee knew about the RAC's Central Information Unit/Facilitator's position and role at TBRPC; (5) All attendees had heard about Consensus groups for interagency data sharing and their purpose and all but 4 knew how they operate under RAC guidelines; (6) Attendees spent an average of 2.2 hrs hours preparing for the meeting; (7) Only 3 attendees had prepared Data Descriptive Summaries for this meeting; (4) All attendees were familiar with the NEP and all but 4 were familiar with its data management strategy.

It can be concluded from the above that the RAC procedures for "getting the word out" work well, but that perhaps some additional effort is needed for those who aren't RAC members. It was also discovered that some who show up at these consensus group meetings may need a short refresher at the beginning of the meeting on how the consensus group operates. The biggest problem discovered was that although the invitation asked attendees to fill out data descriptive summaries, most failed to do so. It is suggested that this request be strengthened in future consensus group invitations.

Each attending agency devoted 3 man hours to the first meeting (1 travel + 2 in meeting) for a total of 53 man hours. Substantial changes were made to the first draft statement predominantly in the focusing of the group on the parts of the statement that preceeded the matrix. The City County Planning Commission prompted several wording changes to bring the draft into conformance with their Comp Plan Process. Since the matrix was not addressed, a second Consensus meeting was scheduled to wrap up the draft revisions.

The second consensus meeting was held on 7/9/92 at 1:30 at the EPC. A copy of the agenda and attendees list is enclosed in Attachment G. The whole meeting centered around completing the revision of the issues statement focusing on the matrix. A copy of the final revised issue statement is attached Attachment H. As can be seen, the end user is now designated to be CAPMAT and success will be evaluated based on delivery to the County GIS system which will be the central repository for CAPMAT. The issue statement includes a plan of action and assigns responsibilities for carrying out the data sharing process. It also identifies for Consensus members in a section identified as "Ongoing Activities" a variety of projects that concern the Aquatic Preserve area. These include: SWIM/Cockroach Bay Restoration Alliance planning for the Restoration of the County's Endangered Lands

Acquisition parcel on the north shore of Cockroach Bay; SWFWMD's designation of the entire study area as a Water Use Cautionary Zone; The county's NPDES activities in the area; and, the Tampa Bay National Estuary Program; FSU's Homer Hoyte Center Study. Another series of parallel activities in Cockroach Bay have evolved since the finalized issue statement and should be of interest to NEP. The EPC was petitioned by Robin Lewis to look into the destruction of seagrasses in the Bay by Propeller scarring. As a consequence, 6/16/92 the EPC amended Ch 1-11 of its Rules to add the species of seagrasses to its wetland species list and incorporated the concept of establishing Recovery Areas and Management Plans to accommodate recovery of beds that have received impact from man. On 9/23/92 the EPC established four Recovery Areas in Cockroach Bay (effective when warning signs are installed) and funded out the EPC Pollution Recovery Trust Fund a Management Plan that includes patrolling by a Marine Sheriff's Deputy, enhanced education and protection by an Aquatic Preserve Manager, and a monitoring of the mechanisms and trends of recovery from propeller scarring by the USF/HCC.

Task 3. Data Transformation from participating agencies.

Implicit in this project's goals are the capitalizing on data already developed by agencies for other purposes for the use by CAPMAT. This capitalization compounds the usefulness of public dollars spent and reduces the likelihood of needless duplication of the costly data production process. At this writing the project has already begun analyzing the data from these other sources by using the Data Descriptive Summaries that have already been provided. Data Descriptive Summaries have been received from:

A. The EPC (for non- GIS data inclusive of Water Quality Monitoring, Old and Active Sanitary Landfills, Small Quantity Generators, Wetland Delineations, Stationary Storage Tank Facilities, Wastewater/Sludge Application Sites, Wastewater Treatment Plants, Industrial Treatment Facilities, Air Monitoring Ambient Data, and Major Air Pollution Sources);

B. The Florida Department of Natural Resources Marine Research Institute (for the results of the Little Manatee River Study inclusive of Florida Shoreline, Roads, Boat Ramps, Detailed Soil Maps, Artificial Reef Sites, Digitized NOAA Nautical Chart Bathymetry, Plant Communities, Seagrass Mappings 1990 and 1988, Land Cover 1950 and 1982, and Aides to Navigation);

C. The NEP (for Benthic sampling locations 1961 to 1989,SWFWMD/SWIM Bibliographic Data Base);

D. The U.S.F. & W.S. (for Land use and biological coverage of Eagle's-nests, Woodstork and wading bird colonies, Breeding Bird survey, Bird Nesting and Feeding areas, and information on 50 priority species);

E. The TBRPC (for a Water Quality Database);

F. Hillsborough County (for Phosphate Mining Map, NPDES Map, County parcel map, Water Quality Map, SLOSH Grid Map, Census Tract Map, Significant Wildlife Habitat Map, Zoning Map, Existing Land Use Map, Base Map containing physical and major road/railroad Infrastructure elements, SWFWMD 5 foot contour map, Commission District Map, Primary Care Facilities Map, and Impervious Areas Map);

G. The U.S.G.S. (for Water Resources Databases);

H. The F.G. & F.W.F.C. (for Habitat cover and Wildlife Occurrence Records);

I. The National Weather Service (for Meteorological Data);

J. Lewis Environmental Services, inc. (for Seagrass aerial cover trend Maps for 1938, 1957, 1991 and FLUCS coded Maps);

K. The S.W.F.W.M.D. (for Section, Township and Ranges, Stormwater Management Permit Points, Stormwater Management Permit Boundaries, Seagrass Mappings of Tampa Bay for 1988, and 1990, USDA/SCS Detailed Soils Maps from County Soil Atlas, FEMA Flood Insurance Rates 1970-1980's, Drainage Basin Boundaries of SWFWMD, Land Use/Cover based on FDOT Scheme Level II, Five foot Contours, Two foot Contours and Spot elevations); and,

L. The Florida Natural Areas Inventory (for its Database on Rare/ Endangered Species).

By this writing all but two invitees to the Consensus meetings (The Florida Department of Environmental Regulation and the Florida Department of Health and Rehabilitative Services)

had provided the requested summaries. All of the provided Data Descriptive Summaries were transmitted to the Florida Spatial Data Directory (Card Catalogue) and on 9/10/92 David Stage (GMDNCC) provided a workshop in Tampa wherein he demonstrated using a lap-top computer and modem that the Summaries were in fact in the Card Catalogue. The reader can dial up these summaries by calling (904)922-5928 or Suncom 252-5928.

Since the essential role of CAPMAT will be initially one of conceptual review, not much effort will be initially made to try to match/ cleanup data that are transferred. This will be delayed until specific needs develop. EPC does not have GIS capability and the data that it wishes to transfer is being digitized for input to the County system over time with hard copy information on wetland delineations and water quality stations having been already entered into this transformation phase. County GIS is employing the services of a GIS technician through this project to accomplish the transformation of EPC data. EPC and County GIS are also looking into the acquisition through this project of a PC based stand alone GIS capable computer so that the Chairman can monitor the progress of data accumulation by the County.

Task 4. Importation and Consolidation of the Data.

The first efforts to transmit some of these data to the County GIS system were undertaken in September, 1992 by contact with the FDNR-MRI and SWFWMD. A test of whether data transformation would be necessary on ArcInfo produced data was made on a sample provided by SWFWMD in August. The test revealed that Genemap's ArcInfo Import capability would work on ArcInfo Export Files. Accordingly, on 10/14/92 SWFWMD began transferring data layers to the County GIS Coordinator (See Attachment I). FDNR-MRI data are scheduled for transfer in late October, 1992.

Task 5. Transfer to End-User.

This task will be incorporated into Task 4 reporting in the final report since the County is the end user according to the changes that were made in the Issue Statement after the Comprehensive Plan was amended.

DISCUSSION

This project has already demonstrated that the Consensus Group and Data Descriptive Summary protocols of the Regional Advisory Committee as well as the services of the Facilitator and Growth Management Data Network Coordinating Council work well for projects such as this. Much remains to be accomplished and a dogged determination to complete the project must accompany any effort such as this. We observed a general desire by most participants to see the project come to fruition, but to arrange for delivery from so many disparate sources takes special efforts by not only the Chairman but also clear communication about the project's goals in the beginning, when agencies are first introduced to the subject.

Each agency performs its services in connection with a project such as this "over and above" the normal duties that it must carry out on a day to day basis. This includes the County GIS staff which has had to make much more time available relative to any of the other agencies. It does not necessarily appear to be a prerequisite that all prospective participants have signed a Memorandum of Understanding to commit to cooperate. Under the existant MOU only 7 signators (Hillsborough County, Environmental Protection Commission, Manatee County, FDER, Florida Department of Health and Rehabilitative Services and the Southwest Florida Water Management District) were initially deemed to be of potential value as producers of the sought data, and only these 7 were invited to the Consensus Group meetings. Of the 7 only Manatee County failed to attend. The Florida Department of Environmental Regulation, even though an MOU signator, seems to have had internal communications problems not only not attending the meetings, but still having not provided a Data Descriptive Summary. The chairman specially contacted this organization several times, and was assured that Information would be forthcoming, but none has been forthcoming at this writing. Part of the problem was that the initial mailings went to the FDER Storet Coordinator in Tallahassee. Later, when the district office was contacted, it appears that no one had initially been designated to handle the requests. On the other hand other parties who weren't MOU signators, e.g. USGS, FDNR-MRI, U.F. & W.S., F.G. & F.W.F.C., Lewis Environmental Services, not only attended but have contributed any information that has been requested from them.

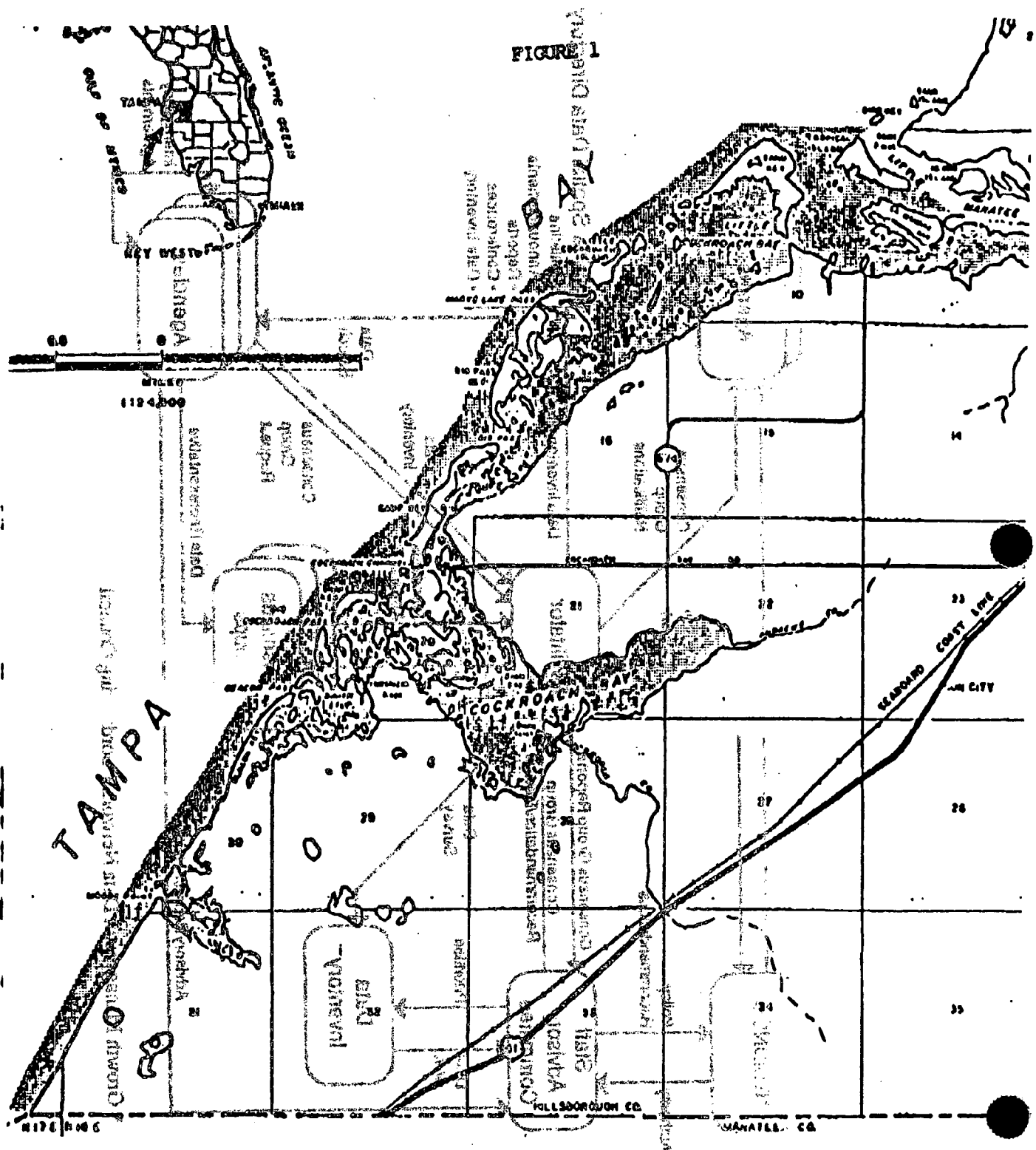
Although Manatee County includes a potential part of the drainage basin for the study area, continued failed attempts to get participation have led to deleting them from the target list for the remaining period of this project. FDHRS, attended the meetings, but did not have data readily available on septic tanks, one of the data types of interest. Nevertheless, FDHRS has continued to meet with the Chairman and Hillsborough County's Planning and Development Management Department to develop a subproject for acquiring this important data. An attempt is currently under way to cross-reference parcels with areas receiving sewer service to develop a list (by default) of parcels on septic tank. FDHRS staff will then ground truth the default list to gather the needed information.

Work will continue in the upcoming months as the project continues to import data from other sources. Some agencies such as SWFWMD and FDHRS will have data/layers that cannot be released until quality control checks confirm that the data are suitable for distribution.

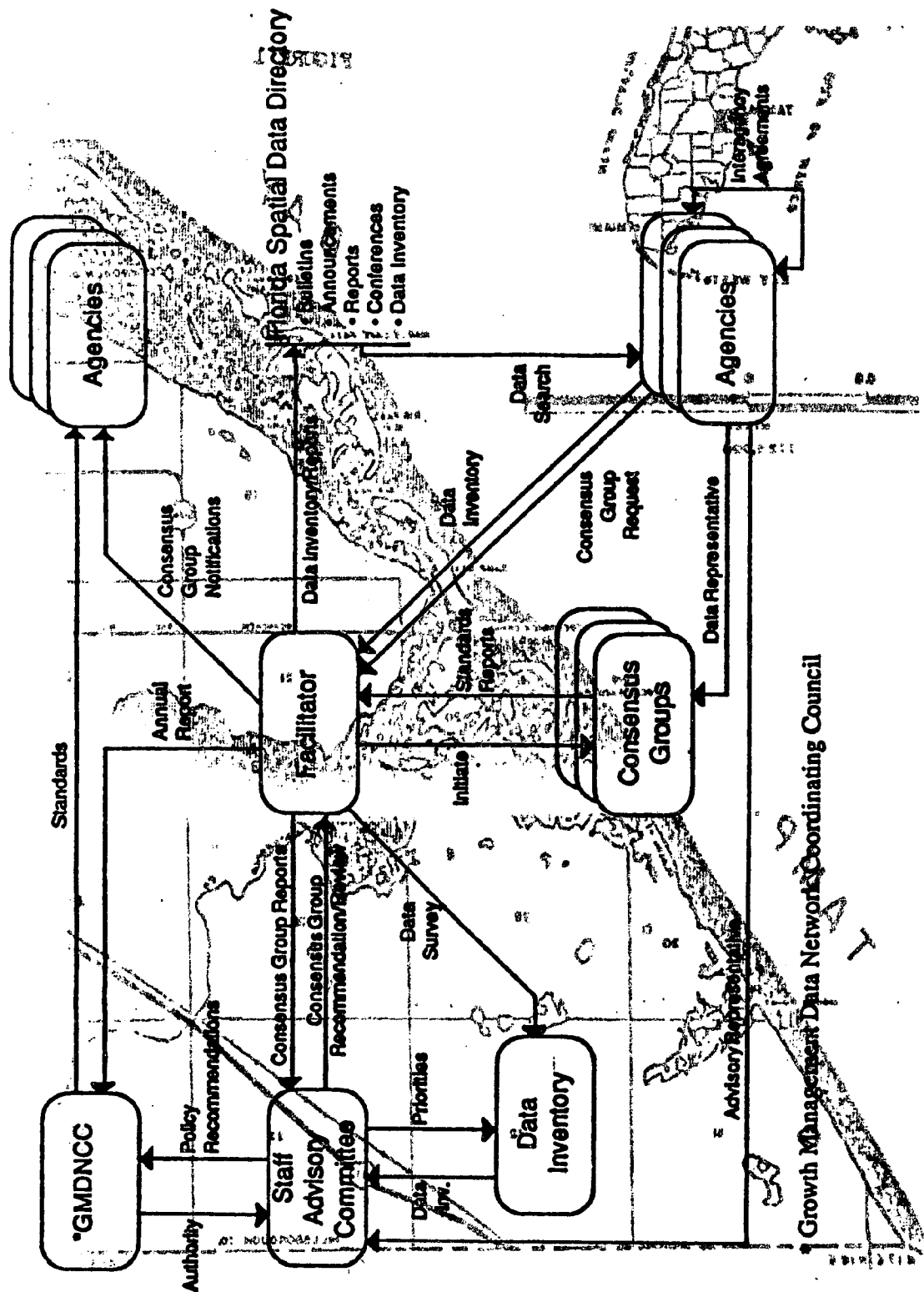
Because of an expressed interest by the NEP in having a repository for data such as the SWIM Bibliographic Data Base, David Stage has initiated some modification of the Florida Spatial Data Directory to allow it to accept other than just spatial types of data.

During the upcoming months we will continue to import the data with project completion still scheduled for January 1993. At that time I will determine success for the purposes of this project. CAPMAT should be operational at that point and will take over the objective of additional data acquisition and begin to utilize the consolidated data base. In 1993, we will also begin making the spatial and data base information available to the FDNR Aquatic Preserve manager.

At the time of this report the author is requesting guidance from the Facilitator as to the timing of requesting that the Data Producers complete Data Dictionary and Quality and Accuracy templates for their various data layers.



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